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A Photographic Monthly

Edited by FAYETTE J. CLUTE

VOLUME XXVI

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A Photographic Monthly

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LAGO DI NEMI
By LOUIS A. GOETZ

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

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Some Notes On Lenses

By J. Walter Doubleday

The average amateur is a good deal at sea in the matter of lenses and their performances, and when he seeks for enlightenment in the average book or magazine article on the subject he is quite likely to find the information obscured with a mass of technical terms and algebraical formulas that are somewhat confusing, to say the least. Both of these faults I will try to avoid, as also that of going into unnecessary detail on unimportant points: making this article brief, even if quite incomplete for so exhaustless a subject. Much that I may here set down should, for this reason, be prefaced with the words, "roughly speaking" or something of the kind, and I trust that this not being done will not lead the reader to assume a too critical attitude should his own knowledge of the subject be greater than that of those readers whom I seek to help.

Among the first things that the beginner should learn is that there is no such thing as a fixed-focus lens, that a rapid rectilinear is not particularly "rapid", that a portrait lens is not at all necessary in the making of good portraits, and that an anastigmat is not the best for all purposes just because it is a very perfect lens and costs a lot of money compared to some others. Any lens of short focus can be used on a fixed-focus camera, particularly if working at a not too large aperture, simply because, at its small actual aperture, it has great depth of field. That is to say, if its fixed position in the camera is such a distance that objects at a certain distance are in sharp focus, objects well in front of and well behind this certain point will also be in focus to a degree that satisfies the requirements of the eye, in the finished print. As the stop or aperture is enlarged, this depth of field becomes less, and that is the reason why the term is so rarely applied to the large aperture anastigmats, but more

commonly to the single lenses with which the cheaper form of small hand cameras are fitted. Stopped down to the same relative aperture, the former has, for the same focal length, exactly the same degree of fixed focus capability. A lens of five-inch focus can be used in a fixed-focus camera if a stop no larger than f-16 be employed; with a three-inch focus lens a stop having twice the diameter, working four times as fast, can be used with satisfaction on a correspondingly smaller camera. This explains why we have cheap fixed-focus hand cameras using quite large sized plates or films, and other much smaller ones of the fixed-focus type costing many times as much. The first are equipped with cheap single lenses, while the latter are fitted with anastigmats having from four to eight times the speed.

And this brings us quite naturally to a consideration of the stop as a factor in this matter of depth of field, sometimes wrongly called depth of focus. Depth of field means the distance between those objects situated at different planes in the view; that are rendered with a satisfactory degree of sharpness by the lens. Depth of focus should mean the distance through which the focusing screen could be moved forward and back without destroying the satisfactory sharpness of the image focused upon. The depth of field is dependent entirely upon the actual size of the lens stop or diaphragm, not its f-value or speed. In our three-inch focus lens mentioned above, a stop one-half inch in diameter would be marked f-6 and have seven times the speed of the same sized opening in a lens of eight inches focus where it would be marked f-16, being so marked in both cases because its diameter is one-sixth and one-sixteenth, respectively, of the focal lengths of the two lenses. But while the speed varies so greatly, the depth of field

THE CRYSTAL PATH By DR. MACLAY LYON

MORNING HAZE By PERCY NEYMANN, Ph. D.

would be exactly the same because the diameter of the two stops are alike.

This, in turn, brings us to the matter of relative speeds, a question which is often quite a puzzle to the beginner, and even to more experienced workers. The f-value of two stops being known, and they are generally so marked, one has but to square these numbers to find the relative value or speed. Taking our example above, the square of the f- value of the first stop, six, is thirty-six; of the other or f-16, two hundred and fifty-six. The relative exposures are as thirty-six to the larger number, or a trifle over seven times as fast. If one is considering a lens working at f-5.5, and another at f-6.3, it is an easy matter to determine, in this manner, that the relative speeds are, ignoring fractions, as thirty is to forty, the first being one-fourth faster than the last.

Returning to our single lens, the kind used in the cheaper grades of hand cameras, it is well to explain that they are really not single lenses, but single combinations made up of two components cemented together, the ordinary lens differs from these in being composed of two such combinations, so arranged in the lens barrel that the stop or diaphragm comes between them instead of in front, as with the single lenses. Some lenses are made up of combinations having more than two glasses, but the general plan of two combinations with the stop between is usually carried out, these being sometimes called doublets to distinguish them. These doublets are more rapid, that is, work at larger apertures than do the single lenses, and it is from this fact that the name rapid rectilinear was evolved in the days before the anastigmat so badly defeated them in the matter of speed. Using two combinations, the makers found it possible to make one of these correct, in a measure, the defects of the other, so that a degree of rectilinearity of the image, impossible with the single lens, was secured. Hence the name by which these lenses are known today.

And in defense of the rapid rectilinear, let me point out that while it acknowledges the superiority of the anastigmat in the matter of speed, and also in the matter of flatness of field, such as copying makes so desirable, its lack of this last good quality is just the one on which the former bases its claims of superiority for ordinary landscape work. The average view that the amateur finds so attractive, the one looking up a roadway or down a stream, for example, presents a series of planes from foreground to distance, with the foreground always coming forward, and quite often one or both of the sides, making the view, as such, really quite dished shaped as to the distribution of its parts. The anastigmat coldly slices out a flat section through the point on which the focus is set; while the rapid rectilinear, with its own dished field, gives us a much better conformity to the arrangement of the subject. The result is that a landscape of this kind made with the latter appears to have more real depth than does one made with the former, the distribution of any softness being alike more pleasingly situated. You no doubt remember having seen some old-time photographer arrange a group in a semi-circle, facing his camera, in order to accommodate the subject to this curved field of his lens. The user of a modern anastigmat arranges them in a straight line because his lens has a flat field.

THE OLD CHINAMAN'S HOME By A. H. JONES

The so-called portrait lenses were produced in order to meet the demand for rapidity due to the slowness of the earlier photographic emulsions of the wet-plate days. They are characterized by great rapidity at the cost of small covering power; and, of course, the depth of field, due to their long focus and large stop, is very small. Aside from the "roundness" that their slight depth and small area of sharpness is supposed to give, a quality more pronounced in the larger sizes, these lenses have no special advantage.

Leaving out of consideration the telephoto lens, a special one for special use, there remains only the wide angle lens for our consideration. A lens may be said to be of medium angle when its focal length is about equal to the base line of the picture produced; narrow angle or long focus when the focal length

exceeds somewhat the picture base line, and wide angle as the focal length becomes shorter than such base line. The ordinary wide angle lens is somewhat on the lines of the rapid rectilinear, the difference being that it has much less speed while covering a much larger plate. Of recent years the tendency has been to use more freely the wide angle anastigmats, despite their higher cost, more on account of their more uniform good definition rather than because of their higher speed.

A wide angle lens is simply one that will include in its field a larger portion of the view than is ordinarily required. Its chief use is in photographing interiors of rooms, tall buildings, where the camera cannot be far enough removed

THE BROOK IN WINTER By CARL THAYER

for the use of an ordinary lens, and for copying and enlarging work. As none of these uses demand a large stop and the first class of subjects demand a small stop in order to secure the necessary depth of field, one of the cheaper kinds, working at f-16 or smaller, will answer for practically all the work for which they are required by the amateur. They should be used only when necessary, as the wide range of view embraced gives the pictures produced a somewhat distorted appearance, although the claim that distortion is a fault of such lenses is not tenable.

There is much that I could add but space does not permit. The subject is a large one and I have only tried to clear up a few simple points not generally understood. If a few of my readers find enlightenment, I am pleased. There is no great mystery about the subject and no pressing demand for other than a little common understanding of the principles involved. Focal length, speed, aperture, angle, and the like, are all related and all quite simple when once understood. What I have offered above will at least serve as an introduction to the subject, I feel quite sure.

Potassium Iodide—Its Many Uses

By George H. Scheibe

The average photographer knows that potassium iodide added to the print developer will prevent abrasion marks on glossy paper, but this is not all that it will do. At the present time, when so many grades of paper, especially the "soft" ones, are being discontinued, it is well to know that the addition of a ten per cent solution of potassium iodide will produce soft effects on the "medium hard" and "hard" grades. Care must be taken, however, as in most cases only one drop to about thirty-two ounces of developer is all that is required to give the desired soft effect. Too much iodide will give a gray, muddy effect.

Greenish or olive color in prints can be overcome entirely by adding a drop or two of iodide solution. It will give a rich black, and also a blue-black, depending upon the amount added. This also applies to bromide papers, but with the one exception that the exposure must be slightly increased, the iodide having the same slowing-up effect as does potassium bromide. Regardless of the amount of potassium bromide in the developer, iodide will overcome the greenish color in prints.

As iodide is included in some formulas for tank development of plates and films, you are safe in trying a drop or two when developing in a tray, especially when the potassium bromide is left out. That veil, commonly known as chemical fog and due to fresh developer or stale plates, will not be in evidence when you lift your plates out of the hypo.

CONSECUTIVE PHRASES OF ACTION SHOWN ON ONE PLATE BY NEW FRENCH CAMERA

How I Conduct My Studio

By Franklin H. Burt

I am located in an average California town of about twelve thousand inhabitants, and have just enough competition to keep me always on the alert for improvements, for new ways of getting in touch with the public, and for methods whereby I can increase business and profits as well. There are plenty of schemes for increasing business but they do not always result in increased profits. As I have worked up as neat and lucrative business as the average photographer could desire, a description of my methods will no doubt interest CAMERA CRAFT readers.

The public is prone to judge a business man by the style of his advertising; if it be up-to-date and catchy, they assume that his work is the same. There are, on the market, sets containing brief catchy advertisements, one for every week in the year. I use some of these, others I compose myself, still others are suggested to me by lines found in the papers and magazines. Here is a typical one:

"If you have beauty, I will take it:
If you have none, come, I will make it."
Burt's Studio for
Portraits that are Always Pleasing.

These are run in the town papers with a border around that is distinctive and not used in any other part of the paper. A foot of this border costs the printer a few cents and it can be used over and over for months.

Another good advertising scheme that I have found to pay well is a small gum sticker, reading, "For Pictures go to Burt's Studio". These I manage to stick up in every place visited by the promiscuous public, such as the post office window, theatre box offices, in fact, wherever there is a chance of their catching the eye. They cost me about a dollar a thousand and they bring me many customers. People often come in and say they saw those stickers every place they went and simply could not remember the name of any other studio.

With my reflex camera I frequently go out and catch a picture of some person unaware and then run an advertisement in the daily papers, reading: "Look for your picture in the window at Burt's Studio. On identifying your picture you will be entitled to five dollars in trade." This brings many persons out of their way to examine the exhibit in my show window, particularly as it is well illuminated at night, and that means business for the studio. I change my windows at least three times a month, showing new pictures and new styles; this reminds the public that the place is not musty but alive and doing the business.

When asked, "How's business," I always reply that it is good, "The best in town, better than I really expected." I never put on a long face and com-

plain, even if business is not good, even if it is bad, as so doing goes a long way toward frightening away a prospective customer, giving him the idea that I am not progressive. The average individual likes a smiling countenance and looks to the possessor of one to make a good picture of his own.

My reception room is arranged to be comfortable and pleasant, yet business-like. In place of the customary counter that suggests a grocery store and canned fruit, I have a large library table on which is arranged my solid-mount samples with their prices marked in plain figures. This permits a customer to select the style and price desired, and assures him that there is one price to all. These samples are covered with a heavy plate glass which forms the top, thus protecting them from becoming soiled by dust or handling. The table also contains two shallow drawers, 16x12 and two inches deep, carrying the cheaper grades of pictures, also under glass and also plainly marked as to prices. My highest priced work is neatly mounted in albums, one for sepias and the other for black-and-white work, and these lie on the top of the table.

A neat, unobtrusive sign, reading "Terms: A deposit required at time of sitting", is placed in a conspicuous place where it can hardly escape the eye. This makes it rarely necessary to ask for a deposit. If the sign is overlooked I do not hesitate to remind the customer of our terms, explaining that in order to avoid a possibility of giving offense by drawing a line we have no line and treat all alike.

I do most of my own reception room work, as I find the customer prefers to see the man with whom he is to do business; and, on learning concerning styles and prices from him, feel more confident that he will secure that style in which he will appear best. In that way one can often sell a better grade of work. I hire a good man to do my finishing and retouching, but believe in doing my own operating, having the assistance of a receptionist if necessary. One should, by all means, make his own negatives. And one should be neat and clean; there is no excuse for pyro-stained hands when showing proofs or finished work; one is an artist, not a laborer. One should pay good salaries to his assistants, and if they cannot deliver the goods, get those that can.

Do not force a sale under any consideration. If the proofs are not to the customer's entire satisfaction, suggest a new sitting; you will find it pays best in the end. I am not a stickler on the return of proofs. I use a little rubber stamp on the back of each one reminding the customer that the proofs are the property of the studio and must be returned. After ordering I usually allow them to keep the proofs, as I believe it is better than throwing them into a box where no one will ever see them. If in the possession of your sitter, they are shown to friends and create a demand for pictures. Often the old proofs are looked over and an order is given to have some finished. If they did not have the old proofs the unordered positions would have been forgotten entirely. And suppose an occasional sitter should have the proofs toned or copied. The results simply call attention to the better quality of one's finished work. The negatives for all my best work are proof-retouched, as I find it means a marked increase in my orders.

I never give away any of my work except to very close friends, as I

find that giving away pictures depreciates the value of one's work in the eyes of the recipient; and, as a rule, one can never after sell that party any pictures. When a customer wishes to order from more than one negative I do not say: "That will be fifty cents extra", or "That will be a dollar extra". I do not try to stop them from spending that other fifty cents or a dollar. My formula is: "Yes, you can get as many positions as you want for only a dollar; you can get just what you want, two positions." I leave out that word "extra"; it sounds bad to the customer's ear,—and besides, I want the money.

I always make it a point to be on hand, whenever possible, to greet customers cheerfully as they enter; trying, by a cordial manner to put them at

AT ANCHORAGE By A. H. JONES

ease at once. I have often observed them lingering at the door as though almost afraid to venture inside; and, once inside, treading on tip-toe, as though entering an undertaking parlor. When one stops to realize that not one person out of a hundred visits a studio more than once a year, their feeling of strangeness is quite natural. This makes it important that one be right at hand to welcome them in. If one has a receptionist she should be instructed to immediately assist with the children if there be any with your visitors, while the proprietor can start at once with his "Hello, Baby", making friends at once. The parents will appreciate the courtesy and attention and often select better work than was at first intended. Even if they do not do this last they will feel more confident of your ability to portray the little ones, and they will recommend you to their friends.

I govern myself as to negatives by the price that is being paid. If it is an exceptionally good subject I make a large negative on speculation and quite often it increases the original order. If one out of twelve order from this speculative plate, one will be amply repaid for the trouble and plates. This

applies to adults as well as children. I have a bromide room in which I make enlargements from my best negatives, showing them to my customers as they call for their finished pictures. I have little or no trouble in selling them, if judgment has been used in selecting the likely buyers, and these enlargements give me many orders for frames.

In my operating room I have the best camera and stand that the market affords, a Century Grand and Semi-Centennial. I use a 3b Dallmeyer lens, making quick exposures possible, thus saving many plates. My developing is done in an Eastman tank, as I find it easy and convenient. The tank should be reversed several times during development, that being the important part of the system. All chemicals are the best obtainable. I believe in using the best material obtainable and in delivering the best work I can produce. My orders are, never waste time trying to doctor up a poor print, just make another, or someone will get a poor photograph, and paper is cheaper than time.

All my bills are paid promptly by check, and I always endeavor to patronize the local dealers and merchants whenever possible. Out of town bills are paid by mail but local ones I always pay in person. This last serves to remind the merchants that I am doing business and patronizing them, they notice and appreciate it, and often take the trouble to turn work my way.

Any photographer will find the above suggestions good ones to follow. Half the battle lies in a cordial greeting, courteous treatment, careful, painstaking service, and the best possible work. Just try my plan and if you do not agree that it is right and that it brings in the money, it is because you have not carried out the plan in the right manner. It has paid in my case, and paid well. And my case is not an exceptional one; it is simply the same as that of any other portrait photographer in an ordinary town of from ten to twenty thousand inhabitants. And there is no reason why the same plan would not prove a good one for the photographer in a larger or smaller place.

If these hours be dark, as, indeed, in many ways they are, at least do not let us sit deedless, like fools and fine gentlemen, thinking the common toil not good enough for us, and beaten by the muddle; but rather let us work like good fellows, trying by some dim candlelight to set our workshop ready against tomorrow's daylight—that tomorrow, when the civilized world, no longer greedy, strifeful and destructive, shall have a new art, a glorious art, made by the people and for the people, as a happiness to the maker and the user.—William Morris.

The arts reflect each other; the terms which are applied to the arts are borrowed from each other. We speak of the tone of a picture and the color of a piece of music. The sculptor must have a sense of color and music or his work will be cold. Each art may definitely require a special set of faculties to be trained, but these are co-relative and must be brought into harmony for power in any one art. Hence a certain amount of training in different arts develops the art capacities and enables the mind to grasp the elements that are fundamental in all arts.—S. S. Curry.

Bird Hunting with a Camera

By Hugo H. Schroder, I. P. A. 3645

With Illustrations by the Author

Bird hunting suggests to the mind the use of a death-dealing device of the type so popular with the so-called "sportsman" who goes out with the idea of seeing just how much destruction he can bring about, with perhaps a decent regard for the number of victims that the law allows. With the less deadly instrument, the photographic camera, the interest should be as great, success should be as gratifying, and there is no limit to the number of birds one may take in a day. I, for one, am well content to use the camera for my hunting, and I certainly find great pleasure in looking over my collection of bird and bird nest photographs, knowing that even the most successful shot was made without bloodshed or even serious annoyance of the victim. Stuffed specimens and blown eggs may have their place in the scientific collections of our museums, but for home decoration, a print or an enlargement from a successful camera shot is more satisfactory. The latter will recall pleasant memories, as well as the former, and do it without the attending thought that the subject was deprived of life to assure our gratification. A desire to possess a collection of birds' eggs obsessed me for a short time during my earlier days, but fortunately for the birds, only about a dozen families were destroyed before I found a better and more humane method of satisfying my desires in that direction. My collection consists of both prints and lantern slides of birds, both young and mature, together with eggs in their nests; and, in addition to my own work I have not

CATBIRD'S NEST

YOUNG CATBIRD

a few examples of the productions of others interested in the fascinating sport of bird photography. Many of these last I have obtained through exchanging with other I. P. A. members, and from the same source I have secured many helpful suggestions.

The outfit of the bird photographer need not be an expensive one. Any long-focus camera, 3¼x4¼ or larger, fitted with a rapid rectilinear lens and a shutter working to one one-hundredth of a second, answers the purpose admirably. The possession of an anastigmat lens working at a larger aperture, and a focal plane or beween-the-lens shutter, working at one three-hundredths of a second, will prove an advantage on many occasions. A camera of the Graflex type, one with a long bellows extension, is the ideal one for the work. But these are far from being necessary; in fact, more simple apparatus often has its special advantages. I have used several cameras, all differing in form, but at present employ a 5x7 Century and a 3¼x4¼ Auto Graflex fitted with a f-6.3 Protar of nearly eight inches focus. This last, with its long focus lens, long focus for the size of the plate, I use for most of my work, particularly with the smaller birds. Even when the larger camera is used, 3¼x4¼ plates, in kits, are loaded into the holders, this size being ideal for lantern slides by contact and if the negatives are of good quality they can always be enlarged.

The beginner in bird photography should consult all the books he can find dealing with his interesting little subjects. In them he will find much information as to their habits, their characteristics, and much that will add interest to the work. A small handbook, such as Reed's "Land Birds", is an excellent guide to carry about as a means of identification. As I have suggested, the work of other bird photographers also proves helpful and inspiring, and from the makers one can get many useful hints and suggestions.

For pictures of nest on or near the ground, a tilting top to the tripod is a necessity, as it is almost impossible to get such pictures with the ordinary type. Another useful piece of apparatus is a small mirror for throwing light into the nest when situated in a rather dark location, as they so often are. In making pictures of nests one should not keep the parent birds away for too long, or the eggs may become chilled. Bright sunlight on a nest makes too strong a contrast and to show the eggs properly, there should be shade, despite the injunction so often given to tie back or remove any branches that cut off the light. If shade is too deep or branches come in front of the nest, the advice is good, of course, but it is better to keep direct sunlight from reaching the eggs by using the focusing cloth or interposing the body, increasing the exposure and using a fairly small stop in order to bring out the delicate markings on the eggs. In some cases orthochromatic plates will be required to bring out the delicate coloring in its true value. The longer exposure also permits one to bring the mirror into play as advised, the light reflected into the nest in that manner not being open to the same objection as direct sunlight.

Young birds may be taken in their nests; or, when fully feathered and about ready to leave the nest, they may be set up on a twig for the purpose. One should, however, select the twig, focus the camera, insert the plate and set the shutter before posing the youngsters for their picture. If this is not

A BIRD IN THE HAND

A NEST IN THE BUSHES

done, the busy little subjects will generally think of an important engagement elsewhere just before one is ready to make the exposure. And if any leaves or branches protecting the nest from sun and rain have been tied back while the exposure is being made, do not neglect to return them to their protecting position, much less destroy or remove such protection.

Pictures of the parent birds on the nest or feeding their young may be secured by setting up the camera in the proper place near the nest, and then operating the shutter from a distance by means of a thread attached to the release or an extension tube with a large bulb. Often the adult birds have some favorite perch near the nest on which they alight before going thereto, so that the camera can be focused on this spot and the shutter operated from a distance as suggested. Some birds will allow one to set up his camera quite near their nests and take a picture without their leaving, but the majority will take flight at once the camera is brought within a few feet. And some of these latter will not return while the photographer is in the neighborhood of the nest, or even when only a small camera is left near; but, if one will but have a little

YOUNG MOURNING DOVES

YOUNG YELLOW WARBLERS

patience he can generally overcome their fear to such a degree that they are less and less disturbed as they become accustomed to his presence near the nest.

One's aim should be to secure series of pictures showing the various stages, from the beginning of the nest to the time that the young birds are in full feather and ready to leave the nest for good and all. Such a series will include the nest containing eggs, the old birds on the nest, and feeding the young; and, if possible, the young birds at the stage in which they are learning to use their wings, but still under the old birds' care. Such a series shows the nest building methods and home life of the bird, and, while not easy to secure, are of greater interest than a like number of assorted subjects.

Some birds stay with us during the winter months; and, if we reside in the South, there are others that come from the colder North to spend the winter with us. These can be easily attracted to desired positions in front of the camera by fastening pieces of suet to trees near the home, or by arranging feeding shelves and placing chopped suet, bread crumbs, raw peanuts, sunflower seeds and different grains thereon. Others will not be attracted by the feeding shelves, but must be given the grain or bread crumbs on the ground. A shelf just outside the window will generally entice a few of these winter visitors if it is supplied with food, and, if the window pane be kept clear, pictures can be taken from within the room. In arranging the feeding shelves at a distance from the house, it is best to have them in view from a convenient window and to erect at the same time a suitable protection for the camera that is to be left focused ready for the visitors and the pulling of the thread that operates the shutter.

This has been written with only my Iowa experience to draw upon, but as I am now in Florida, and intend to remain until next spring, I will have plenty of opportunities to get acquainted with the bird citizens here, and perhaps have other suggestions to make as I do so. I am, however, quite sure that bird photography is more interesting, no matter in what portion of the country one may be located, than the rather miscellaneous photography the average amateur achieves. If a few of my fellow workers will but take up this line of photography, I am quite sure they will find pleasure therein; and, if this article should inspire them in that direction, I shall be more than pleased.

To the photographer who desires to produce pictures, a knowledge of the rules of art is of the most emphatic importance. From the nature of his art he is less called upon to give a form to pictorial conceptions that give pictorial embodiment to existing facts, and it is often only by arrangement of existing material and management of light and shade, that a pictorial character can be given to the representation of prosaic facts. "These rules of old, discovered, not devised, are nature still, but nature methodized."—H. P. Robinson.

Lots of men are wishing for a little leisure time so that they can turn out some good work. But we notice that the best work comes from fellows who haven't a minute to spare. Big men make little noise; newsboys yell their heads off.—*The Russell Co. Bulletin.*

In Which Class Are You?

By Ernest Smith

With Illustrations by the Author

We camera enthusiasts fall quite naturally into several classes, the particular one depending somewhat upon the personal bent of the individual. Some are interested in one thing, some in another, and a few are interested in pictures. But one will find that a large number belong to two widely different classes. that, for convenience I will call the Picture Fiends and the Instrument Cranks.

The Picture Fiend is satisfied with an inexpensive box or an old style bellows camera which has perhaps been in his possession for years, but he is always ready whenever there is an opportunity to make pictures. He can take one into his den or workroom and show a quantity of neat work, pictures of quality that one would hardly dream could have been made with such crude apparatus.

The Instrument Crank is in another quite distinct class, a class to which I must confess I have belonged for years. Go into his laboratory and he starts to show you equipment. Here is a postcard camera of the latest model with anastigmat lens in a high efficiency shutter and with many nice little kinks and wrinkles and adjustments; there is a new imported miniature camera with equipment as good or perhaps better. Last year's models he sold at half price

THE BEAR'S EARS—August, 12 m., Vulcan film, f-16, eight times ray screen, one-tenth second exposure.

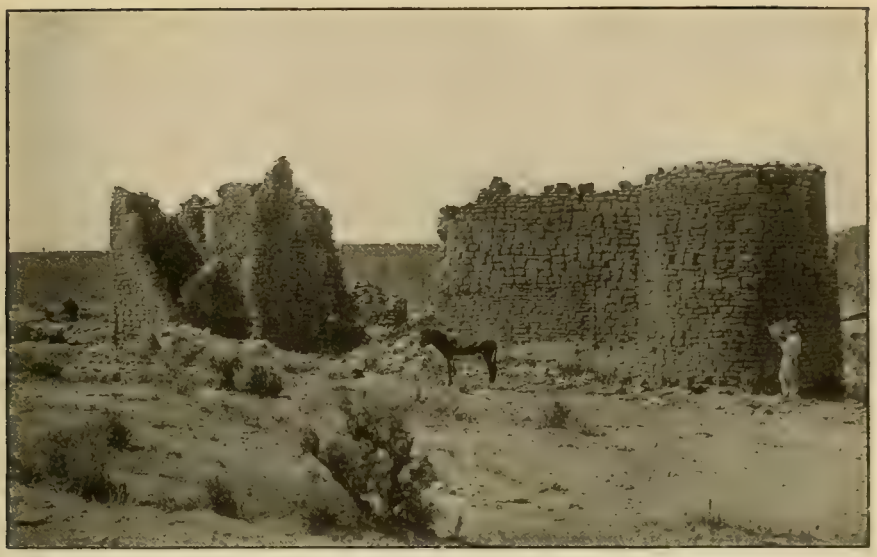
because the new ones have a few little devices that sound nice as the dealer explains them. Being an Instrument Crank he wants the latest, even if it costs him from ten to fifty dollars each year.

But, where are his pictures? With such expensive instruments he should have a fine collection. He gets out a lot of sorry looking prints and explains what made this one bad, why that one was a failure and so on. While he has the tools, he cannot produce the results simply because he does not know these tools as he should. About the time he does learn to use any particular camera to advantage, if using several permits him to do so, new models come out and he replaces the old one with something entirely different, something that he is quite sure will serve his purpose much better. He can't help it, he is an Instrument Crank; and, while he may not admit it, pictures are not his hobby.

THE EDWIN BRIDGE—August, 10:30 a. m., Eastman film, f-16, eight times screen, one-tenth second exposure

If you have the opportunity, go to your dealer's and compare the book of sample prints shown today with the one used ten years ago. Can you tell which is the latest by the quality of the work? I have a 1908 model camera and this year's model of the same make; and, with all the little changes and additions made from year to year the difference in manipulation and efficiency does not seem to be so very important as I imagined at the time they were announced. I do not mean to say that these improvements are not of value. The manufacturers deserve great credit for them. But I do condemn the too common practice of giving them too much importance as against the making of pictures with what one already has.

One thing that should be perfectly understood is the shutter. The same make of shutter on different cameras will vary some at the same marked speed on the dial. The speed of the one-tenth second on the dial of my post card camera is about the same as the one-fiftieth on that of my vest-pocket shutter, and I have to make allowance accordingly. Then, by keeping to one



FORTRESS RUIN CANYON—August, 9:30 a. m., Eastman film, f-8, one one-hundredth second exposure, Autopose used

film and plate until I knew exactly what exposure was required for any light. right exposure was not so difficult. Besides, by knowing one's shutter and plate one can take up a new plate and decide at once if it is faster or slower than the old one. One should see that his exposures are uniform. A shutter that does not work the same each time on each marked speed is worse than useless.

The post card size is the most popular film camera made today. The picture is very pleasing in size and shape. Nearly all finishers make a special price for post card size enlargements from vest-pocket negatives; so that,

THE NAVAJO TWINS—August, 11 a. m., Ensign film, f-16, one twenty-fifth second exposure. Autopose used

by having these two cameras, enough for any one person, one may have all his best pictures uniform in size while having the advantage of two cameras.

Use a ray screen and use it with the camera on a tripod. By comparing results I think one will find outdoor pictures much more satisfactory if an eight or ten times screen be used. Take a few landscape views when large white summer clouds are floating around; and, with a ray screen and the necessary exposure there will be no need of making cloud negatives to print into blank skies. Try one of these little attachments that enable one to take his own pictures. When in a party everybody can be in the picture; and, if one be alone it sometimes helps the scene wonderfully to have a figure included. But, do not stand stiff-legged and stare at the camera,—be doing something.

When you go afield do not leave a fifty or one hundred dollar camera hanging on the wall just because it is a little trouble to take it along. The opportunity for a good picture always presents itself when one's camera is not at hand. And then, when you do take it along do not leave it in the case just because you are too lazy to use it. The manufacturers would just as soon sell you material as equipment and material carefully used will give one returns in pictures worth showing and perhaps such as can be shown without excuses being made. Buy more films, paper and chemicals and spend less money for new cameras and lenses. Keep the camera you have until you learn to use it, and then keep it longer. What we should all strive for are results, otherwise pictures, for they are the only things that can give us pleasure in later years.

For years I was one of these Instrument Cranks, almost without knowing it. Sometimes I would get a fairly good picture, but generally there was disappointment. I could always see where I could do better if I only had another or a later model camera. While I am not turning out examples of art photography I am at least enjoying being able to make good pictures of such scenes as please my fancy. And furthermore, I can do this regularly and with a degree of certainty that before seemed entirely out of the question. To those who are doing as I once did I would suggest that they mend their ways and do so before it is entirely too late, before they have become dissatisfied with their ill success and given up the delightful hobby of photography.

Fine Art

"Fine art", Ruskin tells us, "is that in which the hand, the head and the heart of man go together". Are we not all neglecting too persistently this last requisite, deceiving ourselves that the first two are all that the production of a photographer demands?

The last word in both fine art and photography is Harmony. "The picture must sing", John Enneking used to say. Just as one's attention in a noisy street is suddenly arrested by a rich chord streaming through some open church door, so amid the usual haphazard combinations of pictorial elements, a beautiful picture arrests and thrills the sensitive spirit. Without stopping to analyze it we accept it with pleasure.—Henry Turner Bailey.

Print Washer Efficiency

By the Demonstrator

Handling prints from one tray of water to another is really a very effective method of washing, just as walking is a good method of getting from one place to another, but that doesn't mean that it is the most practical. Some form of automatic washing must be evolved or installed, ranging from the end of a hose stuck into one corner of the sink or a large tray, up to one of the scientifically designed washers now on the market. And a little consideration of the subject may help one to decide what is most advisable for his particular purpose.

A rapid flow of water is but a very slight, if any, advantage. It has the disadvantage of greater liability of tearing the prints, it deposits more impurities on the gelatine film, it has a tendency to carry the dilute hypo along with the print, rather than away from it, and it costs more money if the water is metered. We have seen it recommended to color the water in a washer and then judge of the efficiency of the apparatus by measuring the time taken for the color to become entirely removed. If one will stop to think a moment

THE STUDY OF NAVIGATION By A. H. JONES

he will realize that such a test would mean nothing worth while, as to the merits of the washer, because we must not only carry away the hypo that gradually soaks out of the prints, but we must allow that hypo to soak or wash out. One could take a batch of prints out of the hypo bath and throw them into quite a swirl of water, and, if wrongly constructed, the machine might simply carry prints and hypo solution along without giving them much, if any, chance to separate.

A much better test could be made by taking a few spoiled prints, soaking them in a weak solution of common wash blue, and then introducing these to the washer's gentle mercy. One could, by repeating an experiment of this kind a few times, determine about what strength of flow through the machine or washing arrangement was most effective. The truth of the matter is that the term washing gives the mind a wrong impression. Suppose one had a number of sponges filled with, say, our solution of wash blue,—and the gelatine emulsion of our prints with its load of hypo solution is quite similar in its nature. We could put those sponges under a tap, let a strong stream of water play on them for some hours, and yet squeeze out blue color at the end of the experiment. We could put them in a fast flowing current of water and allow them to float rapidly along for a considerable distance with the same result. The whole thing simmers down to this: acknowledging the impracticability of hand washing with a squeegeeing introduced between each shift from one tray to another, we should look well to the effectiveness of the washer used. Any makeshift arrangement is almost certain to be low in efficiency, if not ineffective to a degree. A properly designed print washer is a most useful adjunct to any finishing room, and is well worth all that it may cost.

EDGE OF THE CANE FIELD
By A. H. JONES

A JAPANESE GARDEN

HAWAIIAN MOONLIGHT

A Small Finishing Plant

By Lawrence Scott

I shall try to be complete enough in my descriptions to earn forgiveness for being tardy in my giving them.

I cannot pretend that my equipment and methods are in any sense ideal, but they have some good points and I will describe them as they are, without further apology.

As the work comes in during the day, each customer's name is written on the film roll, and the envelopes in which the finished work is to be delivered are made out at the same time. Usually, when enough films to fill a tank have been received, they are developed. This, of course, cannot always be done, but it is best to develop several times a day rather than to wait until evening, or next morning, to develop a large number of rolls. When twelve or fifteen films are in they are taken to the dark-room for development. I turn on a light and read the name on the first roll, then turn off the light and unroll the film to the end, where I scratch or write the name, using the point of a ten penny nail. This writing develops out later somewhat as does an autographed title on film exposed in the autographic kodak. Tearing off that part of the paper that is unrolled, I place the spool and film in a light-tight box, in my case

A COUPLE OF HAWAIIAN LANDSCAPES By A. H. JONES

a Higgins India Ink box with a sliding cover, until all the films are marked and ready to be developed.

All films are developed in a 9x15 tank that is forty-two inches deep. This tank is made of ordinary galvanized iron, fitting tightly into a heavy case made of two-inch redwood, fastened together with long iron bolts. I find that galvanized iron is just as good for a developing tank, or tray for developing enlargements, as stone or enameled ware, and much better than wood. Of course acid hypo will destroy galvanized iron, but I do not put acid hypo into my tank. The films are suspended from wires which are hung on a rack conveniently placed, and each film is looped over one, emulsion side out, and the loose ends fastened together below with Kodak, Jr., film clips. As each wire is loaded it is lowered carefully into the developing tank and the cover clamped back into place. I keep the tank always tightly covered to prevent oxidation of the developer. This last is made up by taking:

Metol (or Serchol)	2	ounces
Hydroquinone	8	ounces
Sulphite of soda	4	pounds
Carbonate of soda	2½	pounds

and dissolving in the order given, in a couple of gallons of warm water, placed in the tank which is then filled with water. With fresh solution development takes about fifteen minutes, longer as it becomes old, twenty-five or thirty minutes indicating that new should be mixed up. However, by adding new developer from time to time, and occasionally an ounce of hydroquinone alone, I made my tankful of developer last all summer.

My film washing and fixing boxes are wood made of 2x12 spruce all the same size, 10x30 inside, and stand side by side in a row beginning at the sink and ending near the tank. They are solidly put together with bolts, and, as no paint whatever is used, are kept clean on the inside with little or no trouble. The outside gets quite dirty, the bolts rust badly, but that does not matter greatly and I have not yet thought of a way to avoid the small inconvenience.

The fixing bath is mixed up according to the regular formula, as follows:

Hypo	20	pounds
Water	6	gallons
To this is added.		
Water	1	gallon
Sulphite of soda	½	pound
Acid acetic No. 8	1½ or 2½	pounds
Alum	1	pound

This makes a boxful of hypo, which lasts me from five to seven days, developing fifty or more films a day. I fix prints in the same solution, although I know it is bad practice. I find that prints do not exhaust the hypo appreciably, as do films. On one or two occasions I have overworked my hypo with some stained films and a ruined batch of prints as a reward. As a

result, I never overwork my fixing bath now, preferring to err on the other side, even to the extent of throwing away some good hypo.

I wash films in the washing box, but wash prints elsewhere; always applying the permanganate test to make sure that all hypo is removed. The necessary solution is prepared as follows:

Water, about	1 gallon
Carbonate of soda, about	4 ounces
Permanganate of potassium, about	1 ounce

This I keep in an old acetic acid bottle, using a few drops a day. I have stained films with this solution, and so a warning is in place. It stains films very readily.

To dry the films I hang them on a wire fitted with film pack drying hangers. I find these quicker than the push pins that I used until recently. When the films are dry I am ready to print. I use an 8x10 Crown Printer, manufactured by the Folmer & Schwing Division, Eastman Kodak Company. This is fitted with one amber bulb and four one-hundred-watt Mazda nitro filled bulbs. I print on Artura Non-Curling for the most part, and do not cut the films before printing. I mark the number of the roll of film on the back of each print from that roll, and put the corresponding number on the envelope in which they are to be given to the customer. After a batch of films are all printed, I cut the individual films apart and put them also into these envelopes. When working alone I print off a whole batch of films before developing any prints, except as I may occasionally try a print or two to see if the exposure is about right before going ahead with too many. I put the exposed prints all in a pile, face downward, and when done printing I develop them all at the same time. For the prints I use the Artura formula exactly as printed in the slip that comes with the paper. The trays I use for prints are ordinary glass candy trays that cost me twelve and sixteen cents each. I have not as yet acquired the knack of handling more than six prints in the developer at one time, and when I am not rushed I keep only about four going through the developer.

My prints are fixed in the hypo box described and washing is done in a 21x29 galvanized iron tray that is about three inches deep, one that is also used for enlargements. This is not quite satisfactory but is the best I have at present. However, I find that a shallow tray is much better for washing prints than a deep one. Cabinets in which to dry films and prints are desirable and enable one to finish work in a shorter time than is possible without, but I have not yet supplied myself with them. I dry my prints on stretchers made by covering light frames with cheesecloth or surgeon's gauze. Before putting prints out to dry, I pile them up evenly, all facing one way, in the wash water. This pile is placed between two smooth boards and the surplus water squeezed out with a Jorgensen cabinetmaker's clamp. I allow the last few drops of water squeezed out to drip into a little of the hypo test solution, and if no color change takes place, the prints are put out to dry.

When dry the prints are trimmed on an Eastman No. 2 Trimmer. This has a stationary blade and moving table, and I find it very satisfactory indeed, much more so than the ordinary type, for this class of work. Mine is screwed

over a hole cut in the table top so that the trimmings fall into a box that stands on the shelf below. When starting to trim, the untrimmed prints lie on one side of the cutter, while on the other side are placed the envelopes containing the films, all marked and ready to receive the trimmed prints. The prints are sorted out and arranged according to number as they are taken off the drying rack.

I have found that the work I can quite safely leave to an unskilled assistant is about as follows: Writing the customer's name on the envelopes, with special instructions if any; attending to the fixing of films in hypo; washing and hanging up films; fixing and rinsing prints as I develop them; washing prints and laying them out to dry, and, assorting prints according to number. I leave any work I may be doing to give the films the hypo test as they come from the wash water and as they are hung up I run my fingers down over each film to see that there is no grit or bit of paper on their surface. As I develop the films, print and develop the paper, see customers, and do any photographic order work that may come in, this gives about an even distribution of the work. About fifty to seventy-five rolls are easily disposed of in a day, and by rushing the work a hundred or more could be handled, although that number regularly would necessitate a better arrangement for washing prints, and the trimming might have to be done somewhat more hurriedly.

For the tank development of the films I use an interval timer, price two dollars and fifty cents, obtained from The MacAlester-Wiggin Company, Chicago and Boston, and a lone hand Eastman Timer clock for prints. I use only 4x6 paper and find that the three grades of Artura Non-Curling nearly always meet with the requirements when films are properly developed, but I keep some Professional and Contrast Cyko, Contrast Velox and Hard Argo on hand for films of unusual quality. Two small size pictures are printed on the 4x6 sheet, without cutting it, doing this by using a large mask on the printer and exposing first one and then the other end of the paper. This saves time in developing as well as the annoyance of keeping a number of sizes of each kind of paper on hand.

I find, in my own practice, that Artura Non-Curling is the best paper for my purpose. Prints ordinarily require from three to ten seconds, averaging about four or five seconds each, on Artura; on Velox the time is about one-half second, and other papers are even faster. Though Artura is slow I like it far better than others that I have tried on account of its wide latitude in exposure, and its cleanness of detail. Azo is good and I like it better than some of the others, but I do not happen to be using it at present.

It is strange that any set of men in authority in a university should be so blind to the true nature and value of Art. They stamp themselves as on a par with certain authorities in Boston who refused to have the statuette of Macmonnies for the courtyard of their library, and of those other wise men of the city of politicians who found that Watts' picture of "Love and Life" was too indecent for exhibition there! Truly, Art and Democracy have little in common in our bustling century!—Ralph Radcliffe-Whitehead.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

A GOOD BRASS POLISH: Dissolve sixty grains of oxalic acid in one ounce of boiling water, add four ounces of powdered pumice stone and half an ounce of unsalted lard, grinding all together to a smooth paste. Brass articles not subject to wear should be polished and then given a protective coating of transparent varnish or lacquer as is the case with most manufactured articles.—S. D. F., Illinois.

A SULPHIDE TONING HINT: Prints from hard negatives have to be overexposed in order to secure softness, and these, when toned, have an undesirable yellowish color instead of the sepia desired. This difficulty can be overcome by immersing the prints in the sulphide bath, and then rinsing, before bleaching, proceeding therefrom as usual. Enlargements on bromide paper will require only about two minutes immersion; gaslight prints four or five times longer.—D. F. G., New Hampshire.

PICTURES OF WINDOWS: When I am called upon to make a series of negatives about some home or offices, there are always a few that are virtually home portraiture. Instead of trying to get the subjects into some good position in relation to the strong light from the window or windows, something that is practically impossible except at the cost of blocking off the lower half of the light, I place them boldly in front of the window and point my lens directly towards the light. As a rule, in front of the window is generally the most logical place and the one least liable to be cluttered up with undesirable furniture. The exposures are made rather long for the strong light, although much shorter than when the usual procedure is adopted of seating the subject well back in the room. Then before developing the plate, I give it a few minutes soak in a saturated solution of potassium bromide before rinsing and developing it in a good strong pyro developer. Try this plan once or twice and I think you will be pleased with the results.—E. R. T., New York.

PROTECTING BRASS WORK: Practically all brass goods are turned out from the factory with their surface nicely polished and a coating of lacquer applied to protect that polish. That is the reason these goods look so shiny and bright for a time, despite the fact that brass tarnishes about as quickly as any metal we have. A little wear or a little cleaning and this transparent coating that some of us do not even suspect, is removed, and our trouble begins. We must keep polishing thereafter, or the article looks dull and shabby. A better plan is to well clean and polish and then apply a new coat of lacquer. This last is done most effectively in a factory where a hard lacquer is applied with heat, but a fair substitute can be made in the form of a "cold" celluloid

varnish. One needs only to dissolve twenty grains of cleaned and shredded celluloid film in a two-ounce mixture of equal parts of amyl alcohol and acetone. This keeps well, can be applied cold with a brush, and answers the purpose fully as well as the more difficult process, except that it has not quite the same wearing quality.—D. F. G., New Hampshire.

SAVING TIME AND EXPENSE: I have a lot of stock negatives, local views and the like, from which prints, enlargements and lantern slides are constantly being ordered. My printing light is one with a constant strength and distance, my enlarging light and lens stop are also constant, with my lantern slide equipment the same way. Each negative, as made, is used for a trial print and the time, in seconds, of the printing exposure recorded on its edge. I know that the exposure for a certain size enlargement with my equipment requires one-fourth longer than the contact print, another size another multiple, and a lantern slide still another. The result is that no time is ever lost or any material wasted in turning out any of these from any of my stock negatives. Recently, I have been making carbon prints, and the same system applied by determining the relation between the exposure for carbon in a good diffused light and the gaslight paper exposures given on the margins of the negatives. The plan simply hinges on having all printing done under uniform conditions.—A. S. D., Florida.

HOME PORTRAITURE: I have, on several occasions, noticed the very pleasing effects secured in some of the scenes in the moving picture shows, those showing close-up views of the leading characters. Inquiring as to how they were produced I found that they were made on the stage of an out-door studio with the light well from above and well under control, in the matter of subduing sunlight, with large muslin screens that could be raised, lowered or swung on their centers. However, finding much in the lighting that pleased me, I attempted to secure like effects in my home portrait work. Taking the largest available window in my home, one only five by eight feet, I arranged a curtain roller on the floor below so that an opaque gray curtain could be drawn up from below to a height somewhat above the head of the sitter placed directly in front of it. At each side of the top of the window I arranged two arms extending into the room about three and one-half feet long. These arms were supported by brackets and on their upper edge carried six sets of the ordinary metal supports for curtain rollers. In one of these pairs of holders a curtain roller is placed and the curtain is drawn downward and forward into the room to a point about half way between the sitter and the lens and low enough so that with the eye at the lens the top of the opaque screen drawn up over the lower part of the window, is hidden. The camera of course is placed in the center of the room with the lens pointing directly towards the window. The light coming from the top of the window is mainly reflected downward onto the face of the sitter seated with her back to the opaque curtain covering that part of the window within the field of the picture. One can work in about the same way by attaching the reflecting curtain directly to the top of the window, but I find it better to bring it forward somewhat by means of the two arms mentioned.—F. G. H., Delaware.

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The Photographer Himself

One of our good friends, one of those "Knights of the Road" who call on the professional photographers regularly, and this one has been doing it for a good many years, unburdened his mind during a recent visit to our office. And one of the subjects touched upon forms our title. As near as we can remember his words, they were about as given below, and we really think they are worthy of most careful consideration. He said:

Down at the hotel one night I overheard a conversation that set me to thinking along a new line. Two men were talking about going out for a shave; one wanted to go down to the shop a block below, and the other proposed the opposite direction; as he said; "Because that chap over there is so good natured, gentlemanly, appreciative, and all that, even if he is not the best barber in town". And the opposite direction won. And then, thinking it over, I remembered that my wife went several blocks in our home town to get a plumber that was good natured and gentlemanly, whenever there was anything in his line to be done, despite the fact that there was a good plumber with a larger and better equipped shop less than two blocks away. And then I recalled that almost unconsciously I was doing much the same thing in still coming to this particular hotel, despite the fact that other hostelries offered better accommodations at the same price, as I had proved by trying them.

So when I started out to see the photographers in the next town I decided to stop asking myself if their measure of success was the quality of their work, the appearance of their studios, or what; taking a new tack and trying to figure out how each one would measure up as a man whose customers would go out of their way to patronize him, even while admitting that he was perhaps not the best photographer available. And I found that this measurement had a closer relationship to the photographer's business than the appearance of his studio, its location, and the quality of his work, although, of course, these other things had an influence. I think we have been sticking a little too closely on this idea of good work, proper location, suitable furnishings and businesslike methods, overlooking the fact that the personality of the photographer is equally, if not more important. People do not like to go into executive session with a grouch, they don't like a nervous, fussy individual annoying them when they are trying to look as natural as possible. They resent an air of indifference or one of superior knowledge,—even of photography. Familiarity is objectionable and any crudity or untidiness is repellant to a large number. Yet how many otherwise good photographers have one or more of these faults in some degree, perhaps only to the extent of a suggestion, perhaps only to the extent of lacking a good natured and gentlemanly way, as the unshaven man in the hotel so clearly designated it? The idea is one worth thinking over, worth taking to

heart, if at all applicable. The average photographer is a good fellow, a gentleman at heart, and any bad mannerisms that he may have acquired are really but superficial. His mistake lies in not realizing that his customers do not know him as well as they might, and before they reach that point they are liable to form a wrong impression through observing one of these little deflections that he himself does not notice.

How to Paint a Cornfield

Getting someone else to talk to our professional readers, the portrait photographers, we should, we feel, give our amateur friends, particularly those who are interested in pictorial work, a like consideration. And we can hardly do better than offer them, for consideration, a clipping that we made recently, one that we are quite sure is worthy of the distinction of this special presentation. It reads as follows:

In his book, "Shandon Bells", William Black, who handles words as Millet handles colors, has the following: "Suppose ye want to paint a field of ripe corn; will ye get at it, do you think, by sitting down and 'pentin' the stalks and the heads—ay, if ye were to spend a lifetime at it and paint fifty thousand of them? Ay, and if ye painted a hundred thousand of them as like as could be, ye'd be no nearer getting at your cornfield. For what ye have to paint is what ye see; and when ye look at a cornfield, ye see na single stalks at all, but a great mass of gold, as it were, with a touch of orange here or paler yellow there, and a wash of green where the land is wet, and sometimes of warm red even where the stalks are mixed with weeds; and ye are no going to get that color, either, by chasing the daylight out of the sky and taking the thing into a room and making a clever bit of a fuzzy sketch in gray and green and black. That's easy, but it's no the cornfield. Ay, and there's more. Ye've got to paint more than ye see. Ye've got to put just that something into the cornfield that will make people's hearts warm to it when they see it on your canvas. Suppose that ye've been ill for a month or two; laid on your back, maybe, and sick tired of the pattern on the wall of your room; and at last the day comes when the doctor thinks you might be lifted into a carriage and taken out for a drive. And we'll say it's a fine warm afternoon, and your heart is just full of wonder and gladness like, at the trees and the soft air, and we'll say that all of a sudden, at the turning o' the road, ye come in sicht o' this field of ripe corn, just as yellow as yellow can be under the afternoon sky. Ay, and what is it when ye see such a wonderful and beautiful thing—what is it that brings tears to your eyes? I say what is it? For it's that ye've got to catch and put in your picture, or ye'll be a mistake as a painter."

The Coming Pittsburgh Salon

It is unnecessary for us to call attention to the important position that this salon enjoys, and it is but repetition to comment on the good treatment that its officers accord exhibitors and their work. But we would urge every pictorial worker to remember that the last day of entry is February tenth, and see that examples of their best work are on the road in time to assure attention by the committee. Applications for entry blanks and conditions of entry should be made to Charles K. Archer, Secretary, Pittsburgh, Pennsylvania.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

A Novel Dusting-On Printing Process

So far as I am aware, the process which I am about to describe has not been worked before, but as it resembles in important particulars processes that have been worked, I thought that to call it a new process would be rather too strong an expression; so, by way of compromise, I have dubbed it a "novel" process. It is a modification of that known as the "dusting-on" or "powder" process. The chief difference is that in the last mentioned method it is necessary to prepare the paper with a number of chemicals, some of which are at the present time almost unobtainable: whereas, in this method, this preliminary preparation is done away with. There are also other differences in the subsequent treatment.

All that is necessary is to take a waste bromide print, dissolve out the image with a ferricyanide and hypo reducer, wash it, dry it, and sensitize it in potassium bichromate as for oil printing. It is dried in the dark and printed under a positive. With an average positive, in good diffused daylight, an exposure of seven or eight minutes is generally about right. The print should show a fairly good negative image.

The print has then to be washed, to get rid of the bichromate and to make the negative image as inconspicuous as possible. After the washing it should be very faint. It can then be dried.

When it is desired to pigment the print, it is soaked first in cold water for some little time and then in warm water for a few minutes, pressed for a few seconds between pieces of blotting paper, and any stray drops of water mopped off. In this half-dry condition it is ready for pigmenting. For this it should be laid face up in a dry developing dish. A flat or flat-ended brush is dipped into a heap of powdered pigment, such as lamp-black or ivory-black, and a liberal amount applied to the print for about ten seconds. The loose powder is shaken off into the dish and may be used again, and the print is immediately rinsed in another dish of water. The superfluous pigment should come off in this, leaving only the picture on the paper. It is important that the pigmenting should not be continued for longer than about the time stated; otherwise the superfluous pigment will refuse to come off in the rinsing, and the picture is too delicate to be worked with a brush at that stage.

In this process, it will be observed, the pigment does not adhere to the exposed parts, as in the oil and gum processes, but to the unexposed parts. It comes away from the exposed parts, whence comes the necessity of printing from a positive in place of a negative.

The print after the washing should be hung up to dry, and may then be modified according to taste, in the same manner as a gum print. If the pigmenting should be unsuccessful it may be washed off and done over again. If successfully done, the results are very pleasing and the process is simple. It costs practically nothing, and provides a manner of utilizing waste bromide prints which would otherwise only be in the way. In this connection, bromide prints include gaslight, velox, etc.

If no glass positive of the subject under treatment is available, a print on thin paper can be used instead, but the exposure, of course, will be considerably longer. Strongly contrasted subjects are likely to prove the best.—J. M. C. Grove in *Amateur Photographer*.

"War-Type" or Bromoil-Transfero-Collotype

The following method of printing was evolved with a view to obtaining prints from sets of three-color negatives. It had to be worked out as a monochrome process, and seems as such to offer a cheap and workable method of making a number of impressions

either in the original size of the negative or enlarged.

Fred Judge has produced some very interesting three-color results by the oil or bromoil transfer method, inking up the prints by brush, but I wished to avoid brushwork for the double reason that I have never acquired a satisfactory neatness in inking up prints, and that a truer color rendering was probable if the tones of each print could be faithfully preserved. I therefore decided to use a roller and try for what the bromoil pictorialist loftily terms a "mechanical" result.

I discovered, however, that the wet gelatine print curled itself lovingly round the roller, and could with difficulty be parted from it, so I looked about for some means of fixing the print to a rigid base. This I found in the Kodak Company's Transferotype paper, sold in England. By the transferotype process a print may be made in practically the same way as a bromoil; the final print is not reversed, as in bromoil transfer or collotype, and in three-color printing register is facilitated. I will describe the method for three-color, but its application as a monochrome process is obvious.

A set of transferotype prints is made from the three-color negatives at a single exposure, and preferably on a single sheet of paper, in one large frame, or it may be made in the enlarging lantern. For direct prints, an exposure of three seconds at two feet from an old obscured eight candlepower Ediswan lamp has been found about right for a thin detailed negative, and five or six seconds for a somewhat dense veiled one. Overprinting must be avoided; the prints should be clean and detailed, the shadows not too black, and the high-lights free from veil. For color work it is useful to have a patch masked off on each plate to print in its own color only. Most bromoil workers seem to pin their faith to an amidol developer, and I have used the Kodak Company's formula with double the quantity of water, and sometimes with an additional drop or two of bromide. It will be found convenient to make prints from several sets of negatives at a sitting, and to dry them for use as required. They transfer better after drying, the film being less tender; they should be trimmed a little before transferring, as they expand slightly, but if all printed the same way of the paper they will register correctly.

Transferring to glass is a fairly simple process, the dried print being placed in water till limp, then squeegeed to glass with a roller squeegee, care being taken to eliminate all air-bells, and placed under pressure for forty-five minutes. It is then removed to a dish of hot water, and the paper backing peeled off, the transferotype print remaining on the glass. If prints are transferred immediately after fixing and washing, water at one hundred and twenty degrees Fahrenheit will do; but for dried prints it must be one hundred and seventy degrees Fahrenheit. Cooler water is apt to crinkle the film, and hotter water to melt it; adding hot water is also risky. It is essential to lave it thoroughly in the hot water at this stage, to remove all the soluble gelatine on the surface. It is then allowed to cool, rinsed for a few minutes in cold water, and set up to dry. The prescribed alum bath is omitted. Old negative glasses are suitable for transferring to, if thoroughly cleaned, dipped in a one-to-three-hundred solution of waterglass, and dried. Alternatively, a substratum of hardened gelatine may be used, but does not seem to have any advantage over the waterglass.

The next step is to put register marks on the plates. Most people have their pet devices for this, but a very simple way is to place a ruler across the length of the plate and rule off a short tick at either edge with waterproof ink and a fine pen. The same is done across the width of the plate, and a tick made across the line at the top of the plate to indicate the right way up. Each of the other plates is marked in turn, registering the images by holding two plates against the light and securing them with a clip while the marks are being made. When a yellow print is pulled from the yellow printing plate, corresponding lines are ticked off with a pencil on the paper, and the red and blue images are easily brought into register by adjusting the inked plate with its register marks against those on the paper. It is as well to mark each plate with its printing color. When the register marks are dry, the plates are bleached with Sinclair's or Williams' bleacher at the prescribed temperature, washed and dried. Sinclair's bleacher gives good half-tones, but Williams' is perhaps more suitable if the blacks are at all heavily printed. Finally, a safe-edge of shellac varnish,—made by dissolving brown shellac in methylated spirit—is run round the edges of each plate to prevent the film from catching

on the roller in printing, and the plates are then ready for rolling up.

The yellow printing plate is soaked in water at seventy to eighty degrees Fahrenheit for about fifteen minutes. There does not seem to be any advantage in longer soaking. I fancy the thin film on the plate will only absorb a given quantity of water. Meanwhile the inking slab and roller, the former a clean sheet of glass and the latter a printer's composition roller, may be prepared. A little collotype ink, or Sinclair's oil-printing ink, or dry powder ink rubbed down with boiled linseed oil, is spread over the slab with a palette knife and rolled in all directions with the roller. The ink should be just stiff enough to cause the roller to cling slightly to the glass, and may be thinned if necessary with lithographic varnish or linseed oil; too much should not be spread on the glass at first. The plate is taken from the water and dabbed dry with an old soft handkerchief, laid face upwards on a flat surface, and rolled up with the inked roller. A card with an opening cut just a little larger than the plate will be found convenient to hold the plate steady while rolling up, and saves inking the fingers. Slow rolling puts on color; rapid rolling cleans up the high-lights. For pulling the proofs I use an office copying press, laying the plate down first, glass side down, on a thick sheet of card with a few folds of blotting paper on it, then placing the printing paper, which should be a little larger than the plate, on the inked surface and covering this with a thick piece of felt, such as is used to deaden the noise of a typewriter. This sandwich is slid between the metal plates of the press and a rapid pressure given. The paper is now peeled off the plate, when the image will be found transferred to the paper. In color-printing, of course, the order should be reversed, and the plate laid down on the register marks. As a rule, the plate will need re-soaking for a minute or two after a couple of prints have been pulled from it, but by working two plates at a time, one can soak while the other is being rolled up. If a gelatine substratum has been used, it is possible that the plate may retain more moisture. It may take a little time to establish a comfortable balance between the condition of plate and ink, but it can usually be reached eventually. If the plate has a good deal of contrast, the ink may be very slightly thinned down with varnish, and in this condition, the ink is more readily taken up and any tendency of the paper to stick to the plate is avoided. The quality of such prints is very pleasing, but the high-lights are slightly veiled. An over-printed image may occasionally be saved by prolonged soaking in warm water, and the use of thin ink. The best paper for printing is a thin, smooth one; rough or thick papers do not pick up the ink evenly, and leave tiny white specks. Art papers leave a chalky deposit on the plates. Some papers pick up all the ink from the plate, whilst others leave a good deal in the shadows, a considerable drawback in judging the depth of color when working in three colors. There is at present a restricted choice in white papers of any kind, but one may come across a suitable make of fairly good writing paper. Most papers work best when damp, but a few give blotchy prints when wetted.

The plate should finally be cleaned off with turpentine and a fluffless rag, the turpentine allowed to evaporate, and the plate washed for a couple of hours. The roller and slab are cleaned off with turpentine, and the hands in soap and water; a few drops of turpentine added to the last lather will be found a useful tip.

As to defects and difficulties, white spots on prints are usually caused by dust or specks of dry ink skin getting on to the plate or the roller; and, being forced into the film by the action of the roller, they form a core, round which a circle does not get inked up. Dark patches on prints in parts which should be light may possibly be caused by uneven fixing, uneven bleaching, touching plate with a warm finger and use of alum bath after transferring. Bars of unequal density are due to unequal squeegeeing, as when part of a print has been re-wetted to eliminate air-bells. Transferotype film wrinkling or melting in patches is due to the use of water at too low or too high a temperature in transferring. Blisters are a great trouble at times, but the best preventive is a substratum on the glass and careful squeegeeing. If a blister forms while rolling up, the plate should be washed and dried and a dab of shellac varnish used to cover the blister.—AGNES B. WARBURG in *British Journal of Photography*.

Condensers and Projecting Systems in Optical and Enlarging Lanterns

The question of the effect of the size of the condenser on the illumination produced on a lantern screen has recently been raised by a correspondent, and as it is one of the problems concerning lantern optics that is seldom well understood, we may say a few words about it. As we pointed out in our reply, good illumination depends on three conditions: The collection of as much light as possible by the condenser; the utilization of all the light available by the slide; and the transmission of all the light by the projecting lens. The most confusing of these three conditions is the first, and therefore it deserves detailed consideration.

First, it must be premised that as a condenser system of projection only works perfectly with a small source of light, we need only consider the use of such a light, and we will take the simplest possible case, namely, that of the theoretical point of light. It should be obvious that with a small point of light the amount of light collected by the condenser depends on the distance of that point from the glass, or upon the angle of the cone of light that the condenser receives. In other words, it is dependent on the "aperture" at which we make the condenser work, in precisely the same way as exposure is dependent on "aperture" in the case of an ordinary photographic lens. Now condensers are practically unconnected lens systems; and, while the aberration that they show is ordinarily of little moment it will become of moment if we force the condenser to work at too big an aperture. Experience has shown that we cannot get on with condensers the aperture of which is over f-1, and most condensers are practically lens systems of f-1 which we use at a working aperture of f-1.5 or thereabouts. We may note that it is impossible to give these figures accurately, as the condenser is so full of aberration that we cannot assign it a definite focal length. Speaking roughly, we may say that the focal length is about equal to the diameter, which, of course, implies an aperture of f-1, but this is only an approximation. For the same reason we cannot assign a definite value to the largest aperture at which we use the condenser, but for explanatory purposes it is useful to adopt an approximate value of, say, f-1.5. All condensers in common use being practically of the same form and design—the large ones are merely magnified replicas of the small ones—it is obvious that none will work at an aperture over our assumed standard of f-1.5, wherefore it follows that when working at its best each collects the same amount of light from the light-source. Therefore, a large condenser collects no more light than a small one. There are, of course, special types of condensers. One is the triple condenser, in which a third lens is placed between the light and the usual type of double condenser. This third lens, being nearer the light, collects more light-rays, or, as it is perhaps better to put it, shortens the focal length of the condenser system and increases the aperture; but the third lens, being, in the case of small condensers, very near the light, is liable to break, and is an expensive addition to a big condenser, so that the tripie construction is not popular. Then, again, the better correction of the condenser should enable it to be used at a larger working aperture, but this again may bring the light dangerously near, while ordinary uncorrected condensers are quite expensive enough for most people. With small condensers the light is naturally always near the glass, near enough to crack the ordinary condenser at times, hence the attempt to increase the working aperture is very risky indeed. With big condensers the cost of refined conditions is prohibitive, a well made ordinary double condenser of good quality glass being already a fairly expensive article.

Practically we can ignore special types of condensers, and conclude that with the usual type in a proper adjustment, the amount of light collected is about the same whatever the size, from which it follows that nothing is gained by using a condenser that is bigger than necessary for the proper covering of the slide. A four and a half-inch condenser is, therefore, ample for any optical lantern that is to be used with 3¼x 3¼ slides, and nothing can be gained by using a larger one.

Suppose, however, we are dealing not with the optical lantern, but with an enlarger fitted with a large condenser. Say we have a quarter-plate enlarger fitted with a five and a half-inch condenser. When adjusted, this five and a half inch condenser will collect as much light as the four and a half

inch one in the optical lantern using the same light-source, and it will pass just about the same proportion of that light through a quarter-plate negative as the other will through a lantern plate. But suppose we put the lantern plate in the enlarger. It now only covers three-quarters of the area of the quarter-plate, and therefore only receives three-quarters of the light that it did in the optical lantern, so that light is lost as the result of using too big a condenser. This can, however, be remedied. The cone of light transmitted by the condenser diminishes in diameter as it proceeds from the condenser. Therefore, if we move the slide away from the condenser we can find a place where it fits the conical beam as closely as did the quarter-plate when near to the condenser, and in this position the slide will receive just as much light. This may, perhaps, be expressed more clearly in this way: A four and a half inch circular condenser is, we know, just the right size for the lantern plate, and therefore if we have to use a larger condenser the right place for the slide is that where the cone of light from the condenser is four and a half inches in diameter. In this position the light will be just as good as with a four and a half inch condenser close to the slide. We use a five and a half inch condenser for enlarging 1¾x2⅜ negatives, and the latter have to be put about one and a half inches from the condenser. Unfortunately enlargers generally are not designed to allow of any adjustment of the distance between condenser and negative, hence the larger sizes work at a disadvantage with small negatives. This is often a serious matter, as the smaller the negative the greater is the enlargement required, and for enlarging on a big scale we want all the light we can get. Designers might very well turn their attention to this point in construction.

We now come to the objective or projector. To get the best illumination all the light that passes the slide or negative must also be transmitted by the projector, and as the cone of light from the condenser is subject to aberration no part of it is very narrow, and therefore it cannot all get through a lens of small diameter. The essential thing is that the back lens of the projector must be rather larger than the diameter of the light-cone where the two intersect. Note that what matters is the diameter of the lens, not that of the lens aperture. The aperture must be large enough, but it is not necessary that it should be extremely large. Very commonly we use f-4 lenses as projectors, but tests will show that such lenses can be very considerably stopped down without cutting off any light. The advantage of an f-4 projector lies merely in the fact that the lenses must of necessity be of large diameter.

Here we come to another point. It has been pointed out that the condenser is full of aberration, and will not serve its proper function if forced to work at too big an aperture, and we have assumed that f-1.5 is about the maximum aperture allowable. When the light is perfectly adjusted the condenser will form an ill-defined image of the light-source somewhere between projector and lantern screen. To get the image of the light-source in the right place we must very carefully adjust the distance from light to condenser, but if the latter happens to be of very short focus compared with the projector then the light must be very close, and if so near as to increase the angle of the cone of light received by the condenser, above the angle representing f-1.5, the whole system will break down owing to aberration. This is exactly what happens when the condenser and lens are unsuited to each other: the best condition of lighting can only be secured when the two optical systems work well together. One condenser will serve almost equally well for several different focal lengths of projector, but if we increase the latter beyond certain limits then a larger focus condenser becomes essential.

One more point should be referred to. Many people seem to think that if long-focus projecting systems are used on a distant screen the illumination cannot be so good as when short-focus systems are used on a near screen. As a matter of fact, however, the light may be even better under the first conditions, and with well adjusted systems there is no optical reason why it should be worse excepting when the atmosphere is very misty. Given a clear atmosphere just as much light will reach the screen in either case, and the illumination will be practically equal if the discs are the same size. The long-focus system will give a more uniformly lighted disc, and in this

respect a better one. Though usually extra powerful lights are used for very long distance "throws" in projection, this is only because of the effects of mist or smoke, and in its absence comparatively weak lights will answer quite well.—*British Journal of Photography.*

Some Essentials in the Fitting of the Dark-Room

In the fitting up of fresh premises for a photographic business of moderate size many photographers, so we still find, experience a difficulty in breaking away from the old tradition according to which the dark-room was often the smallest and the worst ventilated room which could be found in the place, and often provided exactly the conditions for the production of defects in plates and negatives which would be laid to the charge of the manufacturer. It is surprising that masters of studios should still expect work to be done well and cheerfully in places which are so ill adapted to the convenience and comfort of their assistants. A reasonable amount of space is one of the first essentials in a dark-room; it is tiring to work in close quarters, for, apart from the bad effects of faulty ventilation, the constant necessity of moving and working with the care which is imposed by a confined space constitutes a strain upon the worker. On this account there is every good reason for having the dark-room of ample size. It is then practicable to carry on work in one part under illumination which will not interfere with the handling of more sensitive materials in another part, whilst the freedom of a decent working space largely reduces the degree of fatigue consequent upon continuous hours employment in the dark-room.

Apart from this general desideratum, one of the first essentials in the fitting up of a dark-room is that on occasion it can be flooded with full daylight. Cleaning up after a batch of work and the regular cleaning which a dark-room should have every week or so can only be satisfactorily done by daylight. Of the various methods for readily admitting daylight there is none better, in our experience, than a double blind running in a frame which is fixed right over that of the window, and which provides a trap for any light creeping round the edges of the blind. Messrs. Sinclair have specialized in the supply of a frame of this kind, and no more convenient form of it could be imagined, although no doubt the man who is handy with tools will find no difficulty in making a similar arrangement for himself. Two separate blinds are necessary, for the reason that no single thickness of material can be depended upon to be sufficiently free from pinholes as to ensure complete exclusion of light. In the Sinclair contrivance one of the blinds is of ruby material, but we think it is just as well to have both the blinds black, for in these days of the almost exclusive use of developing papers, it is a mistake to rely on the varying strength of filtered daylight for the illumination of the dark-room. Moreover, the fixed position of the window in a room, if the window is to be used as a source of ruby or orange illumination, greatly limits one in arranging the working benches in the most convenient way.

A point which, we think, comes next in importance is the provision of a sink of large size to take the tanks or dishes used for the fixing of negatives or prints. The sink should be of such size that plates or prints can be transferred from the fixing bath to the first wash water without removing them from the sink. According to this plan, the floor of the dark-room will be kept free from splashes of hypo, one of the most fertile causes of spots and markings on either description of sensitive material. If prints are handled at a different bench from that on which negatives are developed, then this also should be provided with its large sink in line with it for the accommodation of the print-fixing bath or baths. In the case of that for negatives, an essential fitting, in our judgment, is a lamp projecting slightly over the sink, and adapted for yielding diffused white light when it is required to examine negatives after fixing. This lamp may be of the very simplest description—a box having a front measuring about twelve by twenty inches, and fitted with a sheet of opal glass or a couple of thicknesses of groundglass. If electric light is used, its illumination is a very easy matter; whilst if gas is the illuminant, a Bijou inverted burner will give ample illumination, and may, in certain circumstances, to which we refer in a later paragraph, be placed outside the dark-room. At any rate, let there be the facility for examining each negative, as it comes from

the fixing bath, by transmitted light without there being the occasion to carry it to another place in the room or to the daylight outside, and in so doing to contaminate the floor with drippings of hypo solution. A drawback which certainly attaches to a large sink is the water which is bound to collect on the bottom of it, and which thus tends to make the room very damp. This may be got over by placing the sink slightly tilted towards the outlet, and providing it with a slightly angled false bottom in the shape of a grid, upon which dishes, etc., can be conveniently stood. This plan enables the sink to drain almost dry after use, whilst it does not interfere with the occasional employment of the sink for washing a large batch of prints, or even for the development and fixing of an enlargement of altogether unusual size, the usual plug for the outlet being replaced by one which permits an inch or two depth of water in the sink and allows any water above this depth to pass down the outlet. The wooden grid also obviates the liability to breakage of measures or dishes which may be accidentally let fall on an earthenware sink, whilst in the case of smaller sinks, which it may be considered satisfactory to set level, the same degree of prevention of breakage may be secured by the use of a mat of rubber or thin lead on the floor of the sink. One or other of these arrangements is, we think, preferable to the use of lead sinks, which are much more difficult to keep clean, and are not altogether free from trouble in the way of leakage.

In the fitting of benches at which the development of plates or prints is done, a large measure of comfort is secured by surfacing the bench with good thick first quality linoleum, which will last for years, and is made perfectly clean after the day's work has been done by going over it with a cloth. It is not a bad plan to nail down a narrow fillet or beading of wood along the front and back edges of the bench, in order to prevent any developer or other solution which may be spilt from running down the sides. Another plan to the same end, which we have used ourselves and have noticed in dark-rooms from time to time, is to make the top of the developing bench on a slant towards the sink which forms a continuation of it. In order to provide a level top the bench is provided with a wooden grid, supported at the lower end of the bench i. e., that next to the sink with a cross bar which just brings the top level. Thus any solutions which are spilt drip through the grid and find their way down to the sink. A grid of this kind should be made of stout wooden slats fairly close together, that is to say, not more than half an inch apart, and it is well to give it two or three coats of linseed oil varnish in order to make it waterproof and impenetrable by the developing solutions. Shellac varnish is useless for this purpose, as it is attacked by the alkali of a developer, and then becomes soft and sticky in places.

As regards the lighting of the dark-room, the photographer who has electric current at his command naturally finds his task of providing the most comfortable and convenient illumination greatly simplified; but, whatever illuminant is used, the endeavor should be made to provide a working bench which is used for both negatives and prints with two separate lamps—one (for negatives) with the safelight in an upright position, so that the negative can be conveniently held up in front of it, and the other, for prints, with the safelight horizontal, so that a flood of the requisite illumination is thrown straight down upon the developing dish. With electric light, the horizontal type of lamp is, of course, quite easy to contrive; with gas, it requires a little ingenuity in fitting a box with a safelight between glasses and a short distance above it a compact form of inverted incandescent lamp. While we are upon this subject we may refer to the question of considering the design of a dark-room in the first instance in reference to the compulsory use of gas as an illuminant. If it can be arranged, it is obviously of advantage to have the gas burners placed outside the dark-room, and if a room of fair size is available, this may be most conveniently done by partitioning off a part of the room with matchboarding for the developing and other operations, arranging the developing bench, sink, etc., where light is chiefly required, along the length of the partition. The necessary gas burners can then be placed on the outside of the partition, and, if provided with by-passes, can be entirely controlled from within the dark-room. This arrangement consumes some extra space, but as a rule the portion of the room outside the partition can

be very well utilized for such miscellaneous operations as intensifying, clearing or reducing negatives as require to be done by white light.

There is only one other point to which reference may be made in these general notes, and that is the desirability of the dark-room being without a door. In any business where several assistants require to work in the dark-room, it is a considerable economy if entrance to and exit from it can be effected without admitting white light. While a pair of doors, one opening in one direction and the other in the other, with sufficient space for a person between the two, can serve for this purpose, it is a somewhat fallible method, since one can never guarantee that an assistant will close the first door before opening the second. Where the arrangement of premises permits it, a much more satisfactory plan is an open doorless zig-zag entrance-way to the dark-room, such as may be devised by a matchboard erection, with the inside surfaces of the entrance painted a dead black. This, again, is an arrangement which requires a fair amount of space to carry it out, but it is one which it is worth while to adopt, if circumstances permit, not only on account of the prevention of waste of time, but for the improved ventilation which the open passageway affords.

The above most excellent article, abstracted from the *British Journal of Photography,* treats on the arrangement of dark-rooms, but neither this, nor other recent articles on the same subject give any proper description of the very important method of illuminating dark-rooms, that by indirect illumination. There is in this city, and elsewhere, in dark-rooms devoted not only to amateurs, but to professional services, a most unnecessary gloom combined with a concentration of light at the place where developing is done, usually far in excess of what is needed. For many years I have employed indirect illumination in my dark-room in which I am constantly developing plates of high sensibility, always orthochromatic, and frequently panchromatic. While I always have an abundance of light, I think I can safely say that my negatives are free from any signs of fog. The method that I have employed is one that can be carried out with the greatest of ease, costs but little and gives results which only need to be experienced in order to be appreciated, and I use direct light only for the momentary examination of plates. Over the full length of my developing table is a shelf, its back edge fitted close to the wall, light-tight at point of contact, this shelf inclining, directed upwards at an angle of about sixty-five or seventy degrees. This shelf is simply a ten-inch plank, although it might be better to have it a little deeper. Its upper or inner side is painted white and the walls of the room are light colored, a light red, although I believe a yellow tint would be preferable. On the inside of the trough formed by the shelf are four electric bulbs, one dark red, another yellow, the third dark green, and the fourth an open white light, operated by switch buttons on the outer side. In general, the red is used for plate work, the yellow for bromide paper, the green occasionally for panchromatic work, and the white, of course, for general illumination. The light falling on the inclined surface of the shelf is reflected upwards to the walls and ceiling from which it is again reflected, illuminating the room to such an extent that with only the red light turned on it is quite possible to see everything in the room with ease and comfort, even to reading the labels without difficulty, and I have never found this indirect light to cause fog on a plate. I rarely use any other light for determining when my development is completed; but, if it be thought necessary to do so, I can employ direct light. Opposite each of the four lights is an opening in the shelf, these closed by a piece of groundglass on the inside, and a dark slide on the outside. This enables me, by simply drawing the desired dark slide, to make use of direct transmitted light for the momentary examination of the plate. In my own practice I rarely find need for this provision, but I realize that in some cases, such as in X-ray plate development, there is a real need for the use of direct illumination. I have not only used this method myself for many years, but I introduced it to the notice of one of our leading local radiographers, whose daily work is quite heavy and he is loud in its praise. I sincerely hope that any photographer rebuilding his dark-room will try this method of lighting, doing so with the full assurance that he will never think of using anything else.—[H. D'A. P.]

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Mending Porcelain Dishes

Our Ohio correspondent should mix two parts of Le Page's glue with three parts of sodium silicate and then add enough precipitated chalk to make a paste by rubbing all together. Apply, press together and clamp, drying for twenty-four hours in a warm place.

Portraits With White Backgrounds

An Illinois reader complains that he is unable to get a background that will photograph perfectly white, one that will give him the desired opacity in the negative. He has tried several ready made grounds and used different kinds of paint and distemper in making others, all to no purpose. His trouble is not due to any shortcomings of his backgrounds. They do not photograph white because they are not sufficiently brilliantly lighted, as compared to the face of the sitter. If he will move his ground forward and place it at such an angle that it receives the maximum amount of light, and then subdues the light falling on the sitter's face by means of a head screen or curtain screening of the light, I feel quite sure he will find his trouble overcome. A brightly lighted face in front of a dimly lighted white ground is going to come too light and the background too dark, and that is all there is to it.

Stained Bromide Prints

A correspondent in Ohio writes, in sending some bromide prints, that certain ones have been greatly improved, both as to clearness and strength by the simple expedient of immersing in an acid solution of potassium bichromate followed by re-development; fixing and washing, of course, being again necessary. He advises that the process was undertaken in order to remove stains caused by too long development in an effort to secure more strength. Not only were the stains removed, but the prints greatly improved in quality. The suggestion is one that it would be well worth while to give a trial when one has the time and a few discarded prints to experiment with. The formula for the process is simply that used in the ordinary chromium intensifier. To each ounce of water is added five or ten grains of potassium bichromate, and from one to fifteen grains of hydrochloric acid. It is safe to use this solution without any great care in the matter of removing all the hypo and in the re-development, it may be necessary to expose the paper to diffused daylight in order to secure full density.

Surface Fog On Negatives

The metallic looking fog on the piece of a negative that an Ohio correspondent sends us, appears not infrequently on old negatives and is generally known as dichroic fog. It is the result, generally, of using stale plates or an over-worked developer and it is more liable to appear near the edges and corners of the plate. Farmer's reducer will generally remove it without any damage to the negative, although when this fog is associated with yellow stains in the negative, as it sometimes is, the latter will have to be removed separately, preferably afterward, by means of a strong clearing solution. For the dichroic fog take a suitable amount of clean, fresh fixing bath, hypo and water only, and add a few crystals of potassium bichromate, or red prussiate of potash, as it is called, sufficient to make the bath a decided straw color. Apply with a small tuft of cotton rolled into a fairly hard pad, and go all over the surface of the negative as quickly as possible in order to avoid streaks. Work near a running tap, so that the action can be stopped at a moment's notice by holding the negative in the water as soon as the surface has been given a good swabbing. This solution is a strong reducer and a little practice may be found necessary before one can so use it as to confine the action to the immediate surface of the film, which is all that must be treated. The negative should

be soaked in water before applying the reducer and it is best to make an application, rinse off and then repeat, rather than try to remove all of the fog at one application. This way of working also tends to minimize the danger of uneven action.

Percentage Solutions

Every once in a while some photographic department in the lay press, or one of those stockhouse publications, gives the reader a most enticing table of per cent solutions with the amounts of the chemical worked out to the hundredth part of a grain. While this degree of exactness is rarely if ever necessary, we would not quarrel with these tables on that account, but because they are almost invariably wrong; at least, wrong for this country, because based on the weight of the British fluid ounce. The last case to come to our notice is that of a St. Louis stockhouse publication that evidently copied the thing bodily from some British source, judging from the use of the term "young assistants", and a reference to their lack of mastery of "British weights and measures". In England the fluid ounce of water weighs four hundred and thirty-seven and one-half grains; in this country it weighs over four per cent more. A twenty per cent solution, according to one of these tables of British origin, calls for eighty-seven and one-half grains to the ounce of solution, while rightly, a little over ninety-one grains are required with our ounce.

As we have suggested, the matter is not so important that any great concern need be felt, but the worker should not be encouraged to struggle with fractional parts of a grain and left in ignorance of the fact that with all his care he is still some four per cent in error, just because the publication that he accepts as an authority does not know any better. The simple fact that such formulas as specify per cent solutions almost invariably use round numbers, should suggest that a fair approximation is all that is required. Where a degree of exactness is required, the author of the formula is quite certain to give the amounts in some other form. For example, were it important that a certain sixteen ounces of solution contain just nine hundred and eighty grains, the formula would quote those figures instead of advising a thirteen and one-half per cent solution, despite the lucky fact that the number of grains required happened to be practically just the amount for a percentage solution that could be expressed in simple figures. For all practical purposes it can be assumed that four and one-half grains in each ounce of solution gives a one per cent strength, and multiples of that figure give any other per cent strength desired. Doing so one will be perfectly safe and much more correct than if he tries to follow one of these misleading tables that are not intended for our use.

Give More Time

I asked the finisher the other day if he had a single customer who habitually overtimed his films. He laughed and said: "There ain't no such animal." But those that under-exposed their films were a large proportion of the total number that turned in their work for his tender care. And what could he do? Just keep on turning out prints that ranged from fairly full or barely enough detail down to those showing just barely enough to justify him in assuming that the customer would want a print. When he spoke to a customer about the matter he was told that they had no tripod and, of course, couldn't give less than the twenty-fifth of a second without danger of a blurred image. None of them seemed to realize that by using a size larger stop they were doubling the exposure. Most of this hand camera work is done with a much smaller stop than there is any need of using; in fact, a larger stop would generally result in more atmosphere, more segregation of the planes, more emphasis of the principal object, or some other betterment of the result. Too often the user of the small camera is not quite careful enough in setting his focusing scale, with the result that a prominent part of the picture is out of focus. He either reasons it out, or is told by some other worker that a small stop will remove the difficulty. He therefore, without trying to learn distances a little better and the use of his focusing scale a little more effectively, jumps to the expedient of a small stop and all goes well, perhaps, at least during the summer months. Think the matter over and give all the time you can, within reason, for a roll or two of film, by using a larger stop, and then see if the finisher does not hand you out some better prints.

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Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

John Bieseman, Director Port Card Division, Hemlock, Ohio.

James B. Warner, Director Stereoscopic Division, 413-415 Claus Spreckels Building, San Francisco.

A. E. Davies, Director Western Lantern Slide Division, 1327 Grove St, Berkeley, Cal.

Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4543—Robert H. Reeves, 2719 P St., N. W., Washington, D C.
2¼x3¼, developing papers, of general views. I will be glad to furnish as far as possible pictures of the interesting buildings and views of Washington; for views of large cities or pretty landscapes with water (river or lake or waterfalls) and mountains. Prints only. Class 1.

4544—Robert B. Gable, Gable & Company, Altoona, Pa.
5x7 and larger, developing papers, of scenic, pictorial and night scenes; for pictorial landscapes, etc. Class 1.

4545—W. T. Duvall, P. O. Box 707, Wheeling, W. Va.
3¼x5½, 4x5 and 5x7, various papers, of pictorial incidents of general interest, floods, fires and child studies; for studies of children only, genre, portraits, figure studies. Prints and post cards sent under a cover. Class 1.

4546—George Barcey, Hotel Midvale, Coatesville, Pa.
Class 3.

4547—Adrian Delsman, 1202 Boylston St., Seattle, Wash.
1⅝x2½, 2¼x3¼, 4x5 and enlargements up to 11x14, various papers, of mountain scenes, landscapes, and pictures of general interest; for figure studies, bathing girls, mountain and other scenery of general interest, any size. Class 1.

4548—F. Alphonse Rock, St. Benedict, La.
Class 2.

4549—Fred Goodin, R. F. D. No. 5, Covington, Ind.
2¼x3¼, 2½x4¼, 3¼x5½ and 5x7, developing papers, of groups, scenery, landscapes, views, and general subjects; for mountain scenes, seaside, bathing scenes and general subjects. Class 1.

4550—Robert Balcomb, Galena, Oregon.
Class 2.

RENEWALS

2645—Hugo H. Schroder, Box 421, Fort Pierce, Fla.
2¼x3¼ to 5x7, post card and enlargements, also lantern slides, developing papers, of birds, nests, eggs, wild flowers and nature subjects; for the same and wild animals. First class work only. Class 1.

2984—C. M. Seymour, 346 Park Road, West Hartford, Conn.
3¼x5½, 4x5 and 5x7, various papers, of scenery, children, character sketches and miscellaneous; for pictorial, children, outdoor portraits, and anything of interest. Class 1.

3254—Vernon W. Hutchins, 39 Academy Square, Laconia, N. H.
Class 2.

3345—Rowe D. Murray, 1728 Grand Boulevard West, Detroit, Mich.
Am desirous of any size prints of alongshore, harbor, scenes, marines, that will make good subjects for paintings. Would be pleased to correspond with parties as above. Class 2.

3770—J. William Harmon, P. O. Clerks Box, Oklahoma City, Okla.
Contact prints from 3¼x4¼ to 5x7, and enlargements up to 8x10, various papers, of artistic pictorial photography, a specialty of cloud effects; for the same. Want anything pictorial. Only the very best work sent and accepted. Class 1.

4269—W. A. Gillespie, P. O. Box 156, Stamps, Ark.
3¼x5½, developing papers, of country scenes, miscellaneous park scenes, figure studies, and miscellaneous views; for the same; also beach and water scenes. Class 1.

4413—Wilfred Hickman, Fairmont, Ill.
2½x4¼ and enlargements to 5x7, various papers, of landscapes, snow scenes, cloud and tree studies and various others; for anything of interest. Class 1.

4427—George W. Fry, La Honda, Cal.
Up to 5x7 of woods and general scenery; for the same, especially pure bred farm animal pictures. Class 1.

4441—C. Erwin Ayers, 6 Sabin St., Montpelier, Vt.
4x6, 5x7 and 8x10, developing papers, of Vermont scenery, and high grade home portraiture; for home portraiture, western and foreign scenery. Class 1.

4443—Clarence E. Bundy, Box 25, Tacoma, Ohio.
3¼x4¼ to 5x7, various papers, of nature; for the same; also views of mountains. Class 1.

4467—S. B. Risdon, R. F. D. No. 5, Watsonville, Cal.
3¼x5½ and 5x7, developing papers, of fine California mountain views, lakes and waterfalls, redwood groves, old California missions, etc.; for good miscellaneous views. Class 1.

4524—Frank M. Hinman, 338 North 5th St., Allentown, Pa.
3¼x5½, various papers, of landscapes, mountain scenes, buildings, water scenes, and miscellaneous subjects; for anything of general interest. Class 1.

CHANGES OF ADDRESS

2814—C. Ekman, Stahl Building, Centralia, Wash.
(Was 711 S. Pearl St.)

3911—F. Sufea, Flagstaff, Ariz.
(Was Cameron, Ariz.)

4408—Paul J. Kugler, 108 N. Vernon Ave., Pasadena, Cal.
(Was Peoria, Ill.)

4418—W. S. Wilgus, Gordon Arms Apt., San Diego, Cal.
(Was Santa Barbara, Cal.)

CLUB NEWS AND NOTES

American Lantern Slide Interchange

The following notice to members of the American Lantern Slide Exchange has been sent out: "In order that slides, contributed to the Interchange, may be returned to their owners promptly, kindly notify Mr. O. C. Reiter, 2424 Penn Avenue, Pittsburgh, Pennsylvania, of any slides you may have in your possession or slides that have not been returned to you."

Chicago Camera Club

The evening of December fourth the club gave a wild duck dinner at the Union League Club with thirty-five present. Eugene Hutchinson, Chicago's foremost portrait photographer being the guest of honor. After dinner, there was an adjournment to the club studio; and, in the course of a talk Mr. Hutchinson confessed that while he knew less about the "rules of composition" than the average art student, in striving after the pictorial in his work, rythm, balance, spacing and individuality, particularly the latter, had resulted. Later, Mr. High, one of the members, told just how the mallards for the dinner had been shot, illustrating the subject with lantern slides.

Word has been received that the Directors of the Art Institute has granted the club space for its Sixteenth Annual Exhibition to be held next May. This is quite a compliment to the club, as some rivalry exists in the matter of this space allotment, the demand being far in excess of the allowable dates.

The exhibition at present on the club walls is a most interesting and artistic one, the work of a busy professional of Evanston, Illinois, who occasionally finds time to gratify his taste for pictorial figure work. He does not employ professional models but selects his subjects from his regular sitters; employing a thousand-watt tungsten lamp, sometimes combined with daylight to reduce the shadows. Several of his multiple gums have great richness and depth; one, the study of a farmer's head, having five printings. He does his registering by transmitted light, and amongst other things, has found that with bust pictures the jaw should be about on a line with the horizontal center of the picture space. If lower, as it often is, the subject has a "crouched in" appearance that is undesirable.

OUR BOOK SHELVES

"American Boys' Book of Signs, Signals and Symbols"

Every boy in the country has heard of Dan Beard, if he has not gained a more intimate acquaintanceship through having read some of his articles or books; and as National Scout Commissioner of the Boy Scouts, his fame has widened, if such is possible. In this new book, a fitting companion to the author's "Bugs, Butterflies and Beetles", of the same series, the boy reader will find a wealth of alluring and practical information. The subject is one that the author has studied for years, taking note of the signs and symbols used by trappers, Indians, tramps, in fact, every emblem of the kind that might be useful. He has not tried to invent a system, but rather to apply those in use, some of which have stood the test of centuries. An idea of the contents may be gleaned from the chapter headings, some of which are as follows: Signs of Direction, Danger Signs, Word Signs, Map Signs of People, Chalk-and-Map Signs of Animals, Signs of the Elements, Signs of the Seasons and Signs of Time, Gesture Signals, Hand Alphabets, Signal Codes, Railroad Hand-Flag, Lantern Railway Signals, Steamer Toot Talk, Weather Signs, Flags, Signs Shown by Trails, Tracks, Traces and Spoor of Animals. Some three hundred and sixty-two illustrations, drawn by the author, add greatly to the interest of the book; the value lying in the endless application of the subject-matter, much of which is in actual use in some form of human activity. Published by J. B. Lippincott Company, Philadelphia. Price two dollars net.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

News comes that Harry "Premo" Richardson has taken up golf. He uses but one stick for all his plays. Some expert.

Met Fred Munsey of Los Angeles recently. Have not seen him for years but found him looking just as he did when I sold him photographic goods in the stone age.

L. M. Powell of Hanford was running at full capacity the middle of December.

Mrs. C. C. King is a great help to Mr. C. C. in his Tulare studio. Her color work is exceptionally fine.

J. H. Mott of Taft wishes to sell his studio there. Mrs. Mott was a recent victim of the influenza epidemic.

E. A. Mee of the same town certainly has a very fine studio. The equipment is up-to-date.

Duke Buttrick is certainly a most careful boy. He carries a "first aid" kit with him constantly. We both had to wear "flu" masks while in Riverside recently.

Bob Irwin, formerly of San Francisco, now has a post card studio in San Diego and reports a brisk business during December.

John Hall and Frank Aston were both kept very busy during the holidays in San Luis Obispo. Mrs. Wood and Mrs. Aston assisted Frank during the rush.

J. C. Vassar has been fixing up his studio at Salinas. It now looks fine.

C. C. Green, Salinas' oldest photographer, kept four people busy during the holiday rush.

Joseph A. Dawes Claimed by Death

Enthusiastic, good natured, hard-working, Joseph A. Dawes, passed away, on November second, leaving a charming wife and child, as well as a host of friends to mourn his loss. He was but twenty-eight years of age and in perfect health up to the time of his short illness, due to the pneumonia epidemic. During the past five years he has been advertising and sales manager for the Wollensak Optical Company, fulfilling the duties in a most acceptable mnner and making friends with all those with whom he came in contact through his congenial and wholesouled methods. His passing is a loss that is felt throughout the photographic field in which he was so well known and beloved.

The Annual Pittsburgh Salon

The Sixth Annual Pittsburgh Salon of Pictorial Photography will be held in the Department of Fine Arts of the Carnegie Institute, Pittsburgh, Pennsylvania, March third to thirty-first, 1919, inclusive. All prints submitted will be passed upon by an impartial and thoroughly competent committee of selection. Prints possessing the highest merits in artistic expression and execution will be hung. As has been the rule heretofore, no picture is eligible that has been exhibited before in the United States.

Entry blanks, containing full information and conditions of the salon, may be obtained by addressing Charles K. Archer, Secretary, 1412 Carnegie Building, Pittsburgh, Pennsylvania. The last day of entry is Monday, February tenth, 1919.

An Interesting Series

There has just reached our desk a handsomely printed series of full page advertisements, thirteen in all, that will be used by the Eastman Kodak Company in the better class of magazines and illustrated weeklies during the coming year, publications having a combined circulation of over five million per issue. These are artistic in design, educational in purpose, and dignified as to style. Unquestionably, they mark a high standard of advertising; and all of us who are interested in photography should feel great pride in the fact that the advertising done by such a representative firm in the photographic field is of such a high standard of excellence. Being such, it must reflect no little credit upon photography, in its many forms of employment, in the minds of the millions

who will see these advertisements and be influenced thereby. While the Eastman Kodak Company will no doubt profit from the outlay of thought and skill and money which the running of these advertisements may involve, photography itself will profit to a much greater extent and to a most desirable purpose.

The H. & K. Honor Role

The firm of Hirsch & Kaye is particularly well represented in the matter of employees in the service, the list being as follows: First Lieutenant F. C. Watson, Second Lieutenant Charles Hadley, First Sergeant Louis Magnus, Corporal M. C. Plumlee, and Privates J. F. Shea and F. C. Magnan. We might also mention that Mr. Kaye's son, Frank M., has entered the Naval Unit at the University of California.

The Davsco Bargain List

A new edition of this list has just reached our desk, a list containing many attractive prices that will hold in force until February, twenty-eighth, 1919. A wide variety of photographic goods are listed and readers interested in bargains should send for a copy, addressing David Stern Company, 1212 Davsco Building, Chicago, Illinois.

A Meritous Institution

The Southern School of Photography, McMinnville, Tennessee, announces that its next term will begin the first Monday of April next. All those interested in securing a thorough and practical knowledge of photography should get in touch with this institution by writing directly to President W. S. ("Daddy") Lively, telling him just what they desire in the way of instruction or what they may have in mind in that direction. We can assure them that kind and careful consideration will be given their letters by him.

Making Lantern Slides

We have just received a handsome and informative booklet bearing the title "Lantern Slides—How to Make and Color Them," issued by the Eastman Kodak Company, Rochester, New York. Of more than usual interest are the new methods of dye toning with American-made dyes, fully described, and the entire contents will be found to carry a load of instruction of the greatest value to those interested in this important branch of photography. The booklet will be mailed free of charge to anyone interested who will send in his name and address to the firm mentioned, and every lantern slide worker should avail himself of the opportunity.

Improvements of the Pa-Ko

The Pa-Ko Print Dryer has been given a remarkably wide range of efficiency and adaptability by the incorporation recently of a perfected device for securing three speeds. The high speed, four minutes, is designed essentially for single weight prints, particularly where rapid kodak finishing is required; the medium speed, seven minutes, at reduced heat, is ideal for commercial double weight prints, while the low speed, ten minutes, with heat turned down to the minimum, permits perfectly flat, well cured studio portraits or enlargements. In addition to this, the electric model is equipped with a three-heat switch, giving it a wide latitude. Care must, of course, be exercised, as usual, to govern the heat properly, but the most exacting operator can secure any results desired with a little care and experience. The best feature of all, is that the change of speed may be effected with merely a flip of the finger.

Illinois College of Photography

We were pleased to hear from Miss Cordia B. Thomas, class of 1909, now employed in the Clindinst Studio at Washington, D. C.

Roy Hawse, class of 1898, called at the College recently. It was a pleasure for us to meet Mr. Hawse after all these years, and he was surprised and pleased to note the improvements in the College equipment.

During recent months, the Illinois College of Photography has been accepting enrollments with the guarantee that if the student should be drafted while attending, his entire tuition fee would be refunded.

Felix Raymer, Jr., of Austin, Texas, has just received a commission for a lieutenancy. It seems such a short while since "Little Felix" posed for the class as the bare-foot boy who had just indulged in the delightful pastime of eating green apples.

James McNett, class of 1913, is in France doing his part for our country; A. L. Scotton, of 1915, attending the Government school at Rochester, is qualifying to do his part, and Harry Philpotts, of 1917, is in a hospital in France, recovering from being gassed.

XXVI No. 2 FEBRUARY, 1919 Price, 10 Cen

CAMERA CRAFT

SAN FRANCISCO
CALIFORNIA

Monomet

The Developer of the Present

MONOMET IS THE ONLY DEVELOPING AGENT IDENTICAL WITH METOL IN RAPID, ENERGETIC ACTION

MONOMET develops in the same time as Metol and gives the same characteristic richness and quality—with a tendency to more brilliancy. This fundamentally essential point many are endeavoring to secure by the addition of a caustic alkali, as an accelerator, to developers of the paramidophenol class—which always tends to rob the print of the typical richness required in prints on developing paper.

MONOMET has been tried out thoroughly in comparison with other modern developers and its results are unquestionably superior.

MONOMET sepias are identical with those produced from prints developed with Metol.

PRICE

One-pound container	$22.50
Half-pound container	11.50
Quarter-pound container	6.00
One-ounce container	1.50

ANSCO COMPANY Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

Entered at the Postoffice in San Francisco as Second-Class Matter. Copyrighted, 1919, by Camera Craft Publishing Co.

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Expirations—Subscriptions to Camera Craft are discontinued on date of expiration. The date on the address label on the wrapper shows the time to which each subscriber has paid. Thus: Nov. 09 means that the subscription expires with the number dated November, 1909. ¶**Renewing**—In renewing a subscription, do not fail to say that it is a renewal, giving name and address just as now on the address label. ¶**New Address**—In notifying us of a change of address, give both the old and new address. Should you miss a copy through change of address, advise us of the fact, and another will be gladly sent. ¶**Dealers**—All photographic supply dealers and news dealers are authorized to receipt for subscriptions in our name.

Subscription Price, $1.00 **Canada, $1.25** **Foreign, $1.50**

Camera Craft Publishing Company, Claus Spreckels Building, San Francisco, California

FOREIGN AGENTS

Australia . . . . . Harringtons, Ltd., Sydney
Australia . . . . . Kodak, Australasia, Ltd., Sydney
England . Francis Collas, 3 Wine Office Court, Fleet Street, London, E. C.
New Zealand . . . . . Richard Hill, Matlock House, Devonport, Auckland
New Zealand . . . . . Waterworths Limited, 58 Queen St., Auckland
New Zealand . . . . . Waterworths Limited, 286 Lambton Quay, Wellington
Philippine Islands . . . . . F. O. Roberts, Manila
Japan . . . . . K. Kimbei, Yokohama
China . . . . . Squires, Bingham & Co., Shanghai

FEBRUARY BARGAINS

In High-Grade Lenses, Cameras and Supplies

LENSES

3¼x4¼ **Beck-Steinheil Orthostigmat, Series I, No. 3,** f-6.3, 4¾-in. focus, in genuine C. P. Goerz, Berlin, Sector shutter, 1/150 sec., fine condition, absolutely perfect, list $61.50	now	$26.75
3¼x4¼ **Goerz Syntor,** f-6.3, 5⅛-in. focus, in Century shutter, list $32.50	now	17.85
3¼x5½ **B. & L. Rapid Rectilinear** in T. B. I. shutter, like new,	now	4.25
5x7 **B. & L. Zeiss Tessar IC,** f-4.5, in Compound shutter, like new, list $80.00	now	53.25
5x7 **B. & L. Zeiss Protar, Series VIIA, No. 7,** f-6.3, single combinations 6⅝ and 11½-in. focus, in barrel, like new, list $67.00	now	41.75
5x7 **Goerz Dagor, Series III, No. 2,** f-6.8, 7-in. focus, in barrel, like new, list $59.00	now	36.50
5x7 **Wollensak Velostigmat, Series I,** f-6.3, in Optimo shutter, new, list $54.00	now	29.75
5x7 **Goerz Dagor, Series III, No. 2,** 7-in. focus, in barrel, perfect condition, list $59.00	now	36.25
5x7 **Sereco Anastigmat,** f-6.8, 7-in. focus, in Auto shutter, like new, list $45.00	now	19.75
5x7 **Wollensak Rapid Rectilinear,** in Auto shutter, like new	now	5.25
5x7 **Imported C. P. Goerz, Berlin, Dagor, Double Anastigmat, Series III, No. 2,** f-6.8, 7-in. focus, in Ilex shutter, new, list $67.00	now	43.00
5x7 **Scientific Wide Angle,** in barrel, perfect condition, list $15.00	now	5.95
5x7 **Bush Omnar, Series II, No. 3,** f-5.5, 7½-in. focus, double anastigmat in Automatic shutter, perfect throughout, list $75.00	now	36.50
5x7 **Velostigmat, Series I,** f-6.8, in Optimo shutter, perfect condition, list $55.00	now	29.75
5x8 **B. & L. Zeiss Tessar, Series IC,** f-4.5, in barrel, perfect condition, list $73.00	now	53.50
5x8 **B. & L. Plastigmat No. 4,** f-6.8, 8¾-in. focus, fitted to Optimo shutter 1/300 sec., like new, list $73.50	now	39.75
6½x8½ **Wollensak Extreme Wide Angle,** in barrel, new, list $19.50	now	8.75
6½x8½ **Wollensak Velostigmat, Series II,** f-4.5, 9½-in. focus, new, list $84.00	now	57.75
6½x8½ **Wollensak Vinco Anastigmat,** f-6.8, 9½-in. focus, Regno shutter, new, list $40.00	now	24.25
6½x8½ **Voltas Triple Convertible,** f-8, 10½, 18 and 23½-in. focus, in Auto shutter, new,	now	13.50
6½x8½ **Conley Portrait Lens, Series II,** f-5, 12-in. focus, in Wollensak Studio shutter, Style B, No. 2, new, list $48.50	now	26.50
6½x8½ **Voigtlander Heliar No. 5,** 11¾-in. focus, like new, list $129.00	now	92.50
6½x8½ **Voigtlander Dynar,** f-6, 9½-in. focus, in Koilos shutter, like new, list $78.00	now	46.75
6½x8½ **Beck Isostigmar,** f-6.5, 9½-in. focus, in Koilos shutter, like new, list $97.00	now	51.75
8x10 **Wollensak Velostigmat, Series II,** f-4.5, 12-in. focus, in Studio shutter, new, list $126.00	now	78.75
8x10 **Voigtlander Collinear, Series II, No. 7,** f-6.3, 14⅜-in. focus, in barrel, like new, list $140.00	now	99.50
8x10 **Wollensak Velostigmat, Series I,** f-6.8, 12-in. focus, in Wollensak Auto shutter, like new, list $80.50	now	40.50
8x10 **Velostigmat Wide Angle, Series III,** f-9.5, in barrel, new, list $49.50	now	23.50
8x10 **Darlot Wide Angle,** in barrel, perfect condition	now	6.65
8x10 **Zeiss Tessar, IC, No. 18,** f-4.5, 12-in. focus, in Compound shutter, with lens shade, new, list $193.50	now	152.50

Continued on Next Page

SEAWEED
By FRED R. ARCHER

CAMERA

CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXVI FEBRUARY, 1919 No. 2

How Four Pictures Were Made

By Corporal Fred R. Archer

Illustrated with Examples of the Author's Work

THE AUTHOR IN FRANCE

My Dear Clute:

"Your letter, saying you wanted to reproduce four of my pictures and that you wanted me to tell your readers something about them in particular and my way of working in general, reached me at last. As it is raining so hard that work is impossible today, I will try and do as you request in the hope that it will be what you want and that it will be of help to someone. But it is not conducive to either literary style or mental concentration to be seated on a box that originally contained 'bully beef' bundled up in more clothes than you had ever hoped to own at one time, with no stove within hailing distance and a bunch of the boys playing poker at your elbow, the whole surrounded by a desolation a hermit would shun. The situation really does not harmonize with so pleasant a subject as pictorial photography. Oh, how I have missed my hobby over here where lack of time and equipment has made it impossible to gratify my taste in that direction. While our work is photographic,

it is all hard, serious work of the record sort, lacking in pictorial quality, or even pictorial possibilities.

"With me, pictorial photography has been a hobby, not a business, and I can therefore only consider it from that point of view. I have, almost from the beginning, used soft-focus lenses, the single 'Smith', the P. & S. Semi-Achromatic, being my favorite. My lenses are six, nine and twelve inches focus, all three fitting the same barrel, and all used on a home-made, ramshackle little camera that takes a 3¼x4¼ plate; so the reader can see that, while I use the nine-inch lens mostly, even the shortest focus one is a long focal length for the plate. The exposures are made with a focal plane shutter, this latter simplifying the changing from one lens to the other. A Wratten & Wainright K2 filter is invariably used, with Standard Polychrome or Orthochromatic plates; the latter only in case of great contrast of sunlight and shadow. This, I think, just about covers the ground as to equipment and material used. As to printing, I have made gums,—'Seaweed', which you say you will use as a frontispiece, being one of them; I have made carbons, and I have dallied with other processes, but none of these are necessary in the making of a salon picture. A good bromide, with its delicate gradation, is often far superior to anything one can make with a great deal more trouble. In working this last I prefer to use a good rich emulsion with a warm, black developer.

"Sometimes I start out with a well defined idea for a picture, and try to work to that end; but most of my landscapes are the result of searching out

SUNLIT POOL
48

what I want from the vast store that nature has to offer, and then finding the best view point that is available. Sometimes I tramp all day, constantly alert and looking both behind and ahead, as well as to both sides, without finding anything that I think will make a picture. I may find much that is beautiful, much that the artist of the pen or brush might picture to advantage, but nothing that lends itself fully to photography. At other times I am more fortunate, the pictures seeming to favor me from every direction and quite a number of exposures will be made. Sometimes I am accompanied on my tramps by one or two other pictorial 'bugs', and sometimes we motor out into more distant territory, but never in a crowd except on a Camera Club outing. On these last I have been able to get a few pictures, but most of my best work is made on the less *en foule* expeditions.

SILENCE (AN IMPRESSION)

"The frontispiece, 'Seaweed', was made one day when I was walking along the rock-strewn shore between Laguna and Balboa beaches, on a sketching trip with an artist friend from New York. With us was a young lad whom the artist had been taking along to pose as a model; and, while watching the youth play about the beach as we walked along, I noticed the rocks protruding from the sea with the long strand of seaweed lying near. At once the idea flashed into my mind; one might say that I just naturally stumbled upon the picture. With the composition clearly in mind and with a model that knew how to pose, the making of the picture was a very simple matter. A few days later I searched for the place, but it could not be found; possibly because the tide was much higher and only the tops of the rocks showed above the water.

"And only twice have I found youths of about this age that I could pose with any degree of satisfaction. They are generally quite awkward of action,

but when once one is found that is naturally graceful, there is no better model; as the figure of a lad, slender, and trim, is unexcelled for beauty of line. The other occasion was when 'Sunlit Pool' was made, this time on a club outing; and again the picture, like Topsy 'Just Happened'. We came across some lads in swimming; and, after watching them for a few moments, I decided which ones I wanted. Some coaxing was required, as they were a little bashful on account of the near proximity of the ladies in the party; but, their consent being secured, I looked around for a proper setting and found what I wanted only a few hundred feet away. Back for the lads and again I found I had models that fell right in with the spirit of the thing and took the required pose in the most natural manner. And again, the making of the picture was a very simple matter.

"The making of 'Silence—An Impression', was a different matter. Coming upon the big cliffs in one of my rambles, I was impressed with the great silence about me, as well as with the possibilities the scene presented. I wished to portray my feelings; and, after some study over the subject I decided what I wanted. This involved the imposing of a task upon, and it certainly was some imposition, my comrade of the day, my friend of the 'fuzzytype' school. He is a better photographer than he is a cliff climber, but he finally reached the top. My part of the work was much the easiest, much easier even than his coming down, judging from some of the language used.

"And my calling him my comrade does not imply that I like 'fuzzy' pictures; I abhor most of them. I like a certain degree of softness, but not fuzziness. In using the term I merely allude to a name, one of several equally senseless, applied to work produced with a soft-focus lens, by those who do not enjoy or understand a beautiful art. Thank goodness, a true worker is not concerned with such opinions and he does not allow them to change his own ideas upon the subject. Pictorial work can be made with an anastigmat lens, as well as with any other; it rests entirely with the worker, as, after all is said and done, lenses and cameras are only tools.

"The remaining picture, 'From a Hillside', is simply one of nature's own compositions; and, save for the slight darkening of a very light, dry grass foreground, is a simple, straight print. The three perpendicular tree trunks not only emphasize the hillside effect, which is echoed in the more distant hills, but in themselves they form a quite pictorial arrangement. Viewed from almost any other position they seemed but three ordinary trees standing in a rather barren and unpromising situation; but, from the proper angle the picture is quite obvious. This, I think, shows the importance of giving some care to the selection of the point of view, a matter which I try to give my best attention.

"The reader must not imagine that, because these four examples were secured as described, that I always stumble upon my subjects in this happy fashion. Some of my best pictures, made just before my enlistment, were thought out long before they were made, and finally, on some rainy days, worked out to an exactness that gave me just what I wanted in the final print. And these were the ones responsible for my election to the Pittsburgh Salon. A pictorial worker is not born; nor is he other than an ordinary mortal. It is simply

FROM A HILLSIDE

trying, and enjoying the trying, that results in the final success. Of my experience at "building" pictures, my rainy day work mentioned above, I hope to write as soon as I return, an enjoyable event that I trust is not far distant.

(Signed) "Corporal Fred R. Archer,
"23rd Photographic Section (Air Service),
"American Expeditionary Forces.

"France, December 3, 1918."

No wonder we are all more or less pleased with mediocrity, since it leaves us at rest, and gives the same comfortable feeling as when one associates with his equals.—Goethe.

Nature gives you the impression as if there were nothing contradictory in the world; and yet, when you return back to the dwelling place of man, be it lofty or low, wide or narrow, there is ever somewhat to contend with, to battle with, to smooth and put to rights.—Goethe.

Nature understands no jesting; she is always true, always serious, always severe; she is always right, and the errors and faults are always those of man. Him who is incapable of appreciating her she despises, and only to the apt, the pure, and the true, does she resign herself and reveal her secrets.—Goethe.

The Second International Photographic Salon

By George Brookwell

With Reproductions of Some of the Pictures

The Second International Photographic Salon was thrown open to the public on January third with two hundred and ninety-seven prints on the walls. Interest in the exhibition was stimulated, locally, by the appearance of a full page of reproductions in the rotogravure section of the *Sunday Times* of December twenty-ninth, and again on January fifth, and the Fine Arts Gallery at Exposition Park, Los Angeles, immediately became the center of interest for a continuous throng of visitors, a situation that attested the popularity of pictorial photography in the sunny southland.

ENTRANCE TO THE FINE ARTS GALLERY—LOS ANGELES

The various committees having in charge the assembling of the exhibition, did their work well. The judges devoted numerous sessions to a careful and painstaking effort for a fair and impartial selection of the best work. Praise is likewise due the Hanging Committee, the pictures being carefully arranged in double rows down the long side walls of the gallery, following the order of the catalogue as nearly as possible, with single rows, interspersed with groupings, on the end walls; a very convenient arrangement permitting the visitor to quickly locate any picture or group in the catalogue. One of the first impressions gained on entering the gallery was that there has been an almost universal adoption of the white or cream-toned mount. Here and there a somber note had been struck, demonstrating the advantage of the light mount for exhibition

purposes. Bizarre mounting has had its day; and, while a few still adhere to the old form of enveloping their pictures in somber tints, that style is fast disappearing. No one can deny, on viewing such a collection as this, that a plain white mount of ample dimensions will set off a picture to better advantage than a dark one. We of the sunny southland cannot get away from brilliant light and radiant sunshine, and it is barely possible we may be somewhat prejudiced in our taste for white, but it has become more or less the fashion at all our leading exhibitions, and it is to be hoped that the custom will become still more general.

Generally speaking, bright sunlight does not find favor with the average pictorialist, but a glance through this exhibition reveals a number of very fine effects taken under conditions that are most trying, notably Forman Hanna's four examples taken on the Arizona desert; Ernest Williams "Glimmering Shores", and "Gleaming Fields", both gold medal pictures, and David J. Sheahan's "Dance of Spring" and "Surf Lines". Mr. Hanna has evolved a type of print that harmonizes perfectly with the desolate and barren landscape of

A PORTION OF THE SECOND LOS ANGELES SALON

the sun-scorched desert: His "Walpi" is a favorite subject with artists who have painted it times without number, and while often photographed, rarely with such feeling of bleak desolation. His "Navajo Camp—Canyon de Chelley", abounds in mystery and one goes to it again and again, each time to discover new beauties. The group of Hopi Indians encamped in the wickiup at the base of a cliff is about all one sees at first glance. But there is something beyond the campers, and a closer inspection reveals a vast body of mounted warriors approaching and the cliff immediately assumes gigantic proportions as the vastness of the desert thus dawns on you. Mr. Williams has caught the delicate tracings of receding waves left on the wet sands in "Glimmering Shores"; Mr. Sheahan assays a similar subject in "Surf Lines". Both are in a high key and fairly breathe light and air and sunshine. Of the many thous-

ands of pictures taken on the seashore by the thousands of kodakers and camera artists who annually visit the beaches, how many are there who have anything really worth while to show for their efforts? I have often pondered on this when lamenting my own failures and I am forced to the conclusion that success abideth not in the fields far beyond one, but rather at one's own dooryard, regardless of whether he lives on the barren desert, the crowded city or the sand dunes of Manhattan Beach.

This exhibition is largely represented by the work of artists who have become internationally famous in photography. Their work is usually treated of in the magazines and the press. Their position is secure and the younger generation will find plenty to do to work up to their level. However, some newcomers have appeared whose efforts give promise of a bright future. From Baltimore comes a group of six-print men: Frederick F. Frittita and Holmes I. Mettee; surely no novices in photography, for their work is too clever for that, although the modest dimensions of their exhibits lack the force and dignity of the usual salon print. What they lack in quantity, however, is fully compensated for in quality. Mr. Frittita employs the multi-gum bromide process and obtains effects of strong carrying power and a pleasing richness of tone. His "Dancing Girl" is gracefully active in pose and the best of its kind in the exhibition. Mettee's bromides are so like genuine platinums that they would readily pass for the real article. His "Rainy Day" and "The Picket Fence" are splendid pictures, full of delicate gradation, yet broad in treatment. From Salt Lake City some promising material is shown by a quartet of newcomers: Thomas O. Sheckell, J. George Midgley, L. A. Olsen and J. E.

THE MILL ACROSS THE POND — By E. M. PRATT

SOUTHWEST Copyrighted by GEORGE F. HOLMAN

Broaddus. Midgley's gum prints are broad and sketchy in effect, and while that process is better adapted to landscape than portraiture, his two portraits show pleasing tones and fairly good modeling in the flesh. Olsen's "Weeds and Fence —Winter" is one of the most original and striking compositions of the salon. Sheckell and Broaddus show keen appreciation of the beauties of nature and how to preserve the relative values of land and sky. Simple subjects thus treated often make very beautiful pictures. Of the Californians whose names are less familiar perhaps, than those of the old guard, J. C. Marvin and Ford Sterling, of Los Angeles; Charles A. Love of San Francisco, and Fred Stebinger of Oakland, have pictures that show merit of a high order. Sterling essays the most difficult subjects and, with just a bit more strength, his prints would rank with the best in the show. His portrait, "Mae Murray", is a beautiful and delicate study and reflects great credit on the maker. Marvin is forceful and brilliant, and his picture of the little Mexican lad blowing up a toy balloon, "Idle Moments" —strikes a popular chord. Love has a superb picture in his "The Silent Night", stately in effect and masterly in treatment. "The Street Merchants of Chinatown", by Stebinger recall the delightful portrayals of old Chinatown by Dr. Arnold Genthe in the days before the great fire. The pictorial presentation of the quaint and homely old "chink", is an achievement that is only possible with the aid of a camera. Ralph Willis Brown shows a pleasing figure study, "Girl with Fruit"; while George F. Holman of Portland, Oregon, in "Southwest", portrays the true Western spirit, handling his subject in a real Remington way.

One of the noticeable features of this exhibition is the variety in styles of mediums employed by the artists from the different sections of the country. From Sacramento come two groups of prints that for delicacy and purity of

tonal values are superb examples of straight photography, such as only John Paul Edwards and E. M. Pratt know how to produce. This is photography at its best; no doctoring of negatives, no dodging of prints; just the straight, clean process of proper exposure, correct development and careful printing. True, much depends on selection of subject, and this ability is not so keenly developed by every camera user as by these men, but with practice it can be acquired. Take any one of Edward's six prints or of Pratt's five, "The Mill Across the Pond" for instance, and note how true is the perspective. Objects in the foreground clearly defined, yet not insistent by obtrusive sharpness, then a gradually receding distance with objects still clearly defined, but less sharp, and the horizon blending softly into the sky, up to the fleecy clouds floating softly above the river. These men portray nature, and their art lies in doing it by pure, straight photography, absolutely. They are by no means the only exhibitors employing this method, but they have done their work so perfectly that nothing is left to be desired.

The Chicago Photo Fellows are represented by George Alexander, C. W. Christiansen, Wm. A. Guyton and Paul Wierum; the Buffalo Camera Club by David W. Bonnar, Wallace Lumney, Claude L. Moore, E. I. McPhail, Charles L. Peck and H. W. Schonewolf. These, with Albert F. Snyder of Utica and perhaps two or three others, show wonderful examples of pictorial art. Their medium is carbon, printed from enlarged negatives, and fully as much individuality is expressed in this method as with the more plastic gum process. One of the most imposing pictures of the salon is "The Power of Niagara", by McPhail. W. H. Porterfield, who is perhaps the pioneer in using carbon with enlarged negatives, and whose influence is noted in the work of those just mentioned, has six fine examples in the salon. There is no denying the beauty of this class of work over the straight enlargement, although it involves a great deal of extra labor and expense. But the process has this great advantage, it permits of the altering of objectionable features in the original negative and the expression of the artist's individuality. Still greater is the latitude which the gummist enjoys, and this is evident in the work of Francis Orville Libby and Dr. Rupert S. Lovejoy of Portland, Maine; H. A. Latimer of Boston, and W. A. Hudson of Los Angeles. These artists excel in broad, sketchy effects, some of their prints having the appearance of charcoal drawings.

Most beautiful of all processes and the one most generally adopted by the experienced technician is Bromoil, the six examples by Dr. A. D. Chaffee of New York, and a few scattering prints among the British collection, possessing a strength and a purity and a richness of tone superior to anything on the walls. The favorite medium and the one most popular with the majority of pictorialists, is the direct enlargement on bromide or chloride papers, and many of the most beautiful pictures shown are by this process, notably the six fine portraits by Louis Fleckenstein, figure studies by Louis A. Goetz and Arthur F. Kales, and the landscapes of W. H. Rabe, all pictures of dominating strength and richness of texture. After all, it is not the medium employed or the equipment used that makes the picture. Take, for example, Mr. Rabe's "The Curve", on bromide paper, compare it with any of the bromoils in the exhibition, and

WAYSIDE BLOSSOMS By JOHN PAUL EDWARDS

it is surprising what may be done by the expert. The true artist can always find a way to express the art within, no matter what his medium.

The foreign entries were not as numerous as had been hoped for, but some very interesting examples are shown from England, Australia, Japan and Canada. Donald Butcher's "The Gypsy", and C. Crowther's "Matsumato Koshiro as Ishikawa", also the large head study of a Japanese maiden by Hideo Yosida of Tokio, are splendid examples of portraiture; and in the British loan collection several are noted that compare favorably with the best examples of work shown. Taken as a whole, it is doubtful if such a high standard of excellence has ever been reached before, as comprised in this exhibition.

Those who love to live among the saints and angels of Perugino and Botticelli will hardly be very coarse in their daily life; those to whom Michael Angelo is a constant presence, will when they walk in dark and slippery places feel more really the support of the eternal arms.—RALPH RADCLIFFE-WHITEHEAD.

It is what a man brings with him in himself that he finds in the world of men. An ignoble man cannot paint a great portrait, for he will miss the real greatness of the man he attempts to portray. The quality of a painter's mind is manifest in what he sees in his subject.—RALPH RADCLIFFE-WHITEHEAD.

Making An Exposure Meter

By G. L. Harvey

With Illustrations by the Author

EDITOR'S NOTE: *We have been asked, so often, as to the basis on which the many exposure meters and tables are built or calculated, that a visit from Mr. Harvey, some months ago, was promptly accepted as an opportunity of getting from a real, live, exposure meter inventor or compiler, authentic information on the subject of the foundation of at least one such device, and more, one that is giving universal satisfaction to an ever-increasing number of users. Mr. Harvey's story follows, and we think the reader will gain much information therefrom, information that is practical and applicable to his everyday work.*

As an amateur photographer I have been fortunate enough to be able to travel a considerable portion of each year, and quite naturally was interested in securing photographs of the principal points of interest that I visited. In common with other amateurs, I found correct exposure a bugbear and tried first one exposure meter and then another until I believe I had used every one on the market. Although I carried out as explicitly as I could the various instructions, I still found I had a very large proportion of improperly exposed negatives.

About this time I met a real photographer, a gentleman who is one of the best commercial photographers in the country, one who specializes on outdoor work, and he asked me why I did not develop and print my own pictures. He said it was simple enough; one had but to follow the instructions furnished with each brand of plates, film and paper. He advised me to take one brand of plates and one brand of paper and work with them alone long enough to become thoroughly conversant with their behavior, instead of changing every day or so. He invited me to use his finely equipped dark-room and suggested that I go out with his two sons at any time, returning to develop the negatives, and in that way become better acquainted with the practical working side of photography. I welcomed the opportunity and gladly availed myself thereof.

I soon learned that it was not a question of the strength of the light, as such, or of the exact speed of the plate, but a question of the amount of light reflected back from the subject, this last being the true governing factor in determining the correct exposure for a plate or film. Knowing this, it is obvious that a white building would require less exposure than a dark one, yet none of the meters that I tried seemed to have called my attention to the fact, or at least, they did not make it clear enough to be understandable. They all seemed to ignore, and therefore fail to correct quite common misconceptions that the beginner has. For example, I was inclined to think, just why, I do not know, that a "distant landscape" would require more exposure than a "landscape with near subjects", and I have found others with the same idea. Possibly through a feeling that the impression of the scene had to travel further.

I thought that figures in a "race" would require less exposure than the

ESTES PARK—Near Latitude 40; Bright, Sunny Day; Plate Speed H. & D. 68; Stop f-32; Three Times Filter; shutter set slightly beyond the half second mark as meter called for three-fifths second. This falls under classification: "Distant Landscape", calling for one-fifth second without the filter used to hold back the sky. The small stop used to obtain sharpness in both near and distant objects, the mountains being nearly twenty miles away

SCENE IN ESTES PARK—COLORADO SCENE IN LINCOLN PARK—CHICAGO

Both were taken on bright sunny days in summer; Medium Iso Plate; Stop f-6.3; indicated exposure, one-fiftieth second. The large stop was used to stop motion of water in the first and of slightly fluttering leaves in the other. In the first case a two-times filter was used, making the exposure one twenty-fifth second; in the other, a three-times filter and one-fifteenth second was given. In the first case a quicker exposure would have "frozen" the water, and a slower one showed motion. In the other a deeper filter was required to get the clouds and the slightly slower exposure sufficed for the more gentle motion.

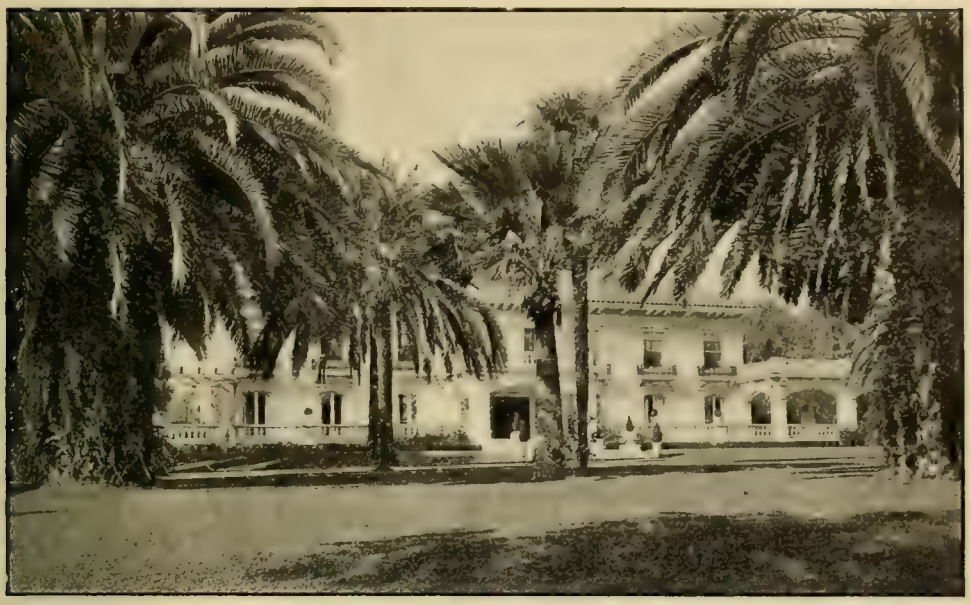
same objects standing still, and I think the general impression is to that effect; but that is not the case, as they require exactly the same exposure. Of course, the exposure must be short enough to "stop" the motion, and if the object is standing still, one would naturally use a smaller stop and give proportionately longer time in order to obtain a sharper picture and a greater depth of field, but the net exposure, or amount of light reaching the plate would be the same in both cases. One can realize that a "beach scene" requires much less exposure than a "street view", for instance, but one has no definite idea as to just what increase of exposure is required.

I found that if I took a view of "sea or water only", a picture of the waves, for instance; and then, on the same day, using the same stop, same plate, and with all conditions equal, I essayed a picture of a "deep wood scene", there was something like two hundred times difference in the exposures, without any change in the general light from the sky. I had no idea there was any such difference; in fact, I thought that an increase of six or eight times would be sufficient for any outdoor picture. Of course, I was mistaken, as my subsequent tests proved most conclusively.

I then set about making a series of tests in order to determine the relative amount of exposure required for different kinds of subjects. I would take three or four cameras and make exposures on, say, a "beach group". With each camera I would start with one two-hundredth of a second and make six exposures, halving the exposure each time, using the same stop throughout, in that way having plates ranging from known under to known over-exposure. I would then develop the plates in the developer recommended by the manufacturer, and from the results select the negative showing the best exposure, making a record of the finding. I would do the same with various other kinds of subjects; "distant landscapes, near landscapes, white buildings, dark buildings, buildings partly in shade, street scenes, woods, pictures", and the like. Quite simple, isn't it? But you must admit that it is the only way to obtain dependable results.

My experiments, however, did not stop here. I had to make exposures in spring, summer, autumn and winter, and at various hours of the day as well. I had to carry on the work in different locations, starting in at Cuba, working through Florida and Tennessee, on up to the North, four hundred miles above Quebec, making innumerable tests on various plates and film, and using three or four cameras in order to have an average of their shutter speeds. In this way I obtained much most valuable data, but I practically repeated the tests a year later, in order that no error might creep in. I also made trips to Mexico, California, Colorado and other sections, photographing at various altitudes in order to determine the amount of difference in exposure, if any. One can easily imagine the work consumed much time and trouble, not to mention the expense. The data thus secured enabled me to compile separate tables for the different geographic locations, and from these last was determined the relative exposures for the different countries, increasing as one travels north from the equator.

In the matter of plate speeds, I found that these were determined by tests made, to a large extent, using artificial light for the exposures in the laboratories.



A PASADENA RESIDENCE—Southern California; Summer; Bright Sun; Plate Speed, H. & D. 68; Stop f-16; three-fourths second. The exposure time was indicated under classification: "Among Fairly Open, Scattering Trees", quite useful in taking many suburban homes

THE SWIMMING HOLE—Summer; Bright, Cloudy; Speed Film Pack; Stop f-32; one second. The exposure, shown to be ample to take care of the ordinary small shadows, came under the heading "Landscape with Near Subjects" and "Bright Cloudy" conditions. It shows that good pictures can be taken when there is not a trace of direct sunlight. What exposure would you have given?

of the manufacturers; and, in all cases, developing with the Hurter & Driffield developer for plate speed testing. Theoretically, this is one of the most accurate methods of determining relative plate or film speeds, but I found that in actual practice the relative speeds did not conform to the markings so secured. Furthermore, I have never found an amateur or professional using the H. & D. developer. This led me to carry out a new set of experiments to determine the relative plate speeds when exposed on everyday subjects and developed in the developer recommended by the respective manufacturers of the various plates and film. My results I found were quite different from those usually published as tables of relative plate speeds. My exposures were made outdoors, during daylight, and on days during which the conditions were quite stable. I exposed quantities of plates and was able to determine relative speeds under actual light conditions usually prevailing in photography, not under artificial light conditions such as are commonly used in plate speed determination. I tried artificial light, but gave up the idea that I could work in a laboratory and determine the correct exposure for outdoor subjects.

Determining the exposure for "early and late hours", even after making a vast number of experiments, proved quite a problem. The "time of day" varies in different countries so that sunset, for example, does not come at the same time in many localities, and clock time changes considerably. I therefore abandoned the idea of using the hours and based my determinations of the correct exposure upon the angular elevation of the sun; calculating these last for the various months of the year, from the Equator to the North countries. From this mass of data was evolved the sun dial for early and late hour exposures, an integral part of my latest meter.

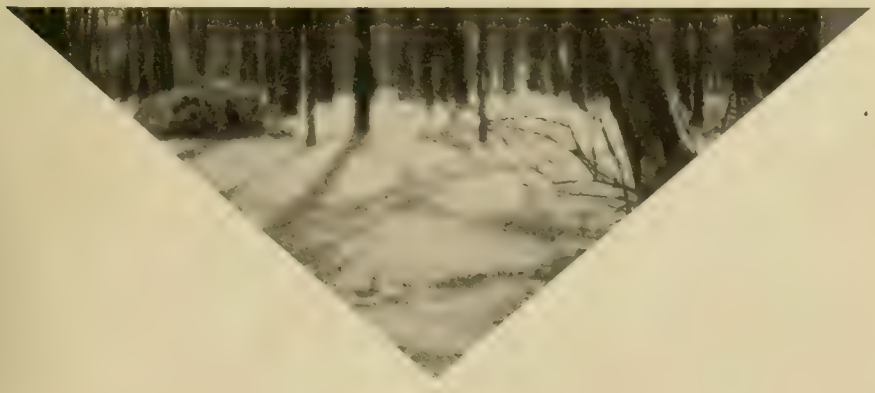
The meter itself is a development that, in the form in which it was put on the market, is a simple device in which is combined the mass of information so laboriously gathered, in such a way as to be instantly available for determining the correct exposure for any required outdoor subject under any condition of light or season, with any stop or plate speed one may desire to use. This is achieved by a simple adjustment of movable parts, requiring no calculation whatever, and with chances of error practically non-existing. For example, if one is using a plate that is twice as fast as that for which the meter is set, it is obvious that all exposures, no matter what the subject, stop or light may be, are changed in the same proportion, that of two to one: and the meter makes these calculations automatically by simply a slight shift of the proper part. The correct exposures for the faster plate are simply read directly from the meter without any multiplying or dividing, except for "early or late hour" conditions.

This is all there is to the matter. My meter is simply a convenient device that gives the average exposures of the best negatives that I have made, and as explained, I have made a good many. There is no reason why one should not be able to go out and make perfect negatives with its aid, even though quite unfamiliar with photographic exposures, either in practice or in theory. The meter will not keep one from making mistakes in focusing, it will not correct focusing scales that are incorrectly adjusted, clean dirty lenses or shade lenses from too strong a front light. It will not prevent double exposures or move-

ment of the camera during exposure. No meter will do these things. The shutter speeds of different cameras vary somewhat, in some cases to a considerable extent, and it is therefore important that a meter should permit of the user adjusting it to a fast or a slow working one. This is a matter that I have provided for in the Harvey Meter which has a ready means of changing the speeds to any desired degree found necessary with the shutter in use. Of course, when time exposures are given, the original indicated speeds should be used, the shutter having nothing to do with the matter in such cases, further than to open and close the lens. The adjustment of the meter to fit the shutter does not prevent instant use of the meter for such time exposures or even use for shutter exposures with a shutter of a different speed.

Too many amateurs are inclined to overrate the importance of the relative plate speeds; but, important as they are, they are not near so vital as the relative exposures for different classes of subjects. The variation in plate or film speeds, those used by amateurs generally, is not more than two to six times at the outside; while, as in the case of the "sea only" and "woods" subjects mentioned in the first part of this article, the relative exposure for different subjects may vary as one to two hundred. And it is this latter kind of variation that is hardest to estimate without the aid of a meter. The worker who thinks that he can take pictures satisfactorily, without the use of a meter, just because he does happen to take a good one once in a while is making a grievous mistake. He will waste quantities of plates or film, and he will lose many a picture for which he would gladly pay more than the price of any meter on the market.

It is singular that though there is no lack of those who will predict the future, when the present is concerned—the present that we see and feel—our opinions about it are, in general, all bewildered and mistaken; and yet without this acquaintance with the spirit of the age in which we live, whatever our culture, and whatever our opportunities, it is probable that our lives may prove a blunder. The necessity of this knowledge pervades the whole business of life; at times it may not be right to follow it, but there can be no doubt that success in life depends a great deal on comprehending it.—DISRAELI.



Getting the Children's Attention

By the Demonstrator

One of the photographers I visit has a neat little scheme for interesting the youngsters, one that is well worth passing along. He started out by rigging up a small table and placing thereon a real telephone that connected, by means of a simple local wiring, with the work rooms where one of the girls was commissioned to talk a line of "patter" over the line when given the bell signal through another wire operated by a press button on the floor. It was arranged that one bell indicated a girl and two a boy, with the length of the signals somewhat corresponding to the age of the child. The results secured were excellent, but it did not take long before pictures of children at the phone become somewhat hackneyed. Then our friend rigged up a speaking tube that ended just inside a hole in the floor, properly placed in relation to the light and backgrounds. A pedestal carrying a plaster cast was fitted with a continuation of the tubing, so that it could be set over the tube opening in the floor and make a continuation thereof. The small table was likewise fitted with a continuation just inside one leg, so that it could be used in the same way. the tube ending inside a fancy box screwed to the table top. Still later, he rigged up a Teddy Bear seated at one end of a small settee, in the same way. It doesn't take a great stretch of the imagination to picture a youngster interested in a box that gave forth the sound of a human voice as the lid was raised, or either of the other devices along the same line. The experienced operator knows something of the work involved in getting good pictures of children of a certain age, and devices of this kind are just the ones that will help with that class. True, there is some work involved in fitting up the tin tubing for the purpose, but in at least this case, was found well worth while. And of course, a girl in the work-room is no more effective than the lady in the reception room, the proprietor's wife, or anybody else available at the other end of the tube. One could, by having a fairly tight-fitting hood to the other end, so that the voice did not escape into the room, do his own talking for the entertainment of the child. But this might necessitate a flexible tubing to permit of various positions of the camera and some skill in keeping the child from knowing where the voice originated. All I can do is to pass the idea along for what it is worth, and leave the application to the individual operator who may see fit to work out something of the kind.

Books are indeed like friends, but the volumes in a man's technical library are more; they are not only friends, but dear counsellors and advisers, helpers upon whose aid and wisdom a man can rely; their presence makes him rich; their loss no weight of gold can replace; they are partners whose mouths speak for him with "the adversary at the gate".—JOHN PHILLIPS.

Tom, and The Nude

By Richard J. Grace

No Illustrations This Time

I believe that I have, in a former article, mentioned Tom and his little camera with a red bellows and a doubtful lens. The impression might be gained from this, that Tom was struggling along on a small income, when the facts in the case are actually quite the opposite. It is inherited, this economical trait of Tom's. His name does not begin with a Mac, but he comes of a race that still lives in large numbers to the North of England, in the only country on earth in which a Hebrew cannot make a living. His grandfather started west from the Mississippi, rolling his r's and gadding two oxen. He had a cart and a keg of whiskey. When he arrived on the Coast he had two hundred head of oxen and six carts, and he was still selling whiskey from the original keg. When settled he quietly accumulated some twenty-six hundred acres of the best land scattered over what is now our county, and then someone thoughtfully located our city so as to include some four acres of this, whereupon the old man built his "store", and while keeping up his spirits, safely anchored our main street on his property. So you can see that Tom is not penniless, as his race never lets go of what they once hold.

Tom, however, broke form this summer and bought a new camera, one that looks like a view outfit, but it has a focal plane shutter and a lens that works at some unbelievable aperture, about one hundred and seventy-five millimeters, to hear him tell it. Upon this purchase, and an artistic ambition, hangs this doleful tale, one that is best told in chronological order.

August 30: My wife and I were seated on the north porch this evening, gazing at the city at our feet, when a thud on the porch floor made us turn our heads; and there was Tom, in flannels and rubber shoes, with a black suitcase. Greetings over, I hinted suavely that he would be late for the beach train, but with a fair imitation of Sherlock Holmes, and a grin that would have turned Mona Lisa green with envy, he mysteriously manipulated the black suitcase, which I then noticed had nickeled trimmings, and produced the wonder camera. He raved over it for about fifteen minutes and looked disgusted when I asked to see the developing and fixing attachments. Looking up, I caught my wife making a little face of dismay as she excused herself, realizing that she could not get a word in edgewise, now that Tom was started.

Tom wished her good-night and then proceeded to unfold the wildest scheme I have ever yet known him to embark upon. Tom was going in for art, real art, and he was going to begin with the nude. I was so overcome that I opened my mouth wide, and my paralyzed hands allowed my cigar to fall in such a way that I had to stand up suddenly to get rid of the hot fragments. Tom,

as usual, wanted my advice; and he got it in one word: "Don't". He persisted, however, so I asked him if he wanted his customary lecture. He admitted that he felt as though he was in for it, and might as well submit. While I packed a pipe to replace the cigar, he explained that he had secured a model who works for Tomasini, so he would not have to start with an amateur.

By this time the pipe was going nicely, so between puffs, Tom received the following: "In the first place, I must decline your kind invitation to participate, as I am not going to have my favorite camping place spoiled by any recollections of a cavorting nude. In the second place, I spent my evenings for five years at an art school, and I still do not feel competent to produce a picture in an offhand manner. It requires much study and many studies to produce a picture. You have had no artistic training beyond studying the photographic magazines and reading Scratchi-itchi Hartless on "Composition". Apparently the only limit to the number of masterpieces you will produce on this trip, is the number of plateholders you will take along. Remember, it is but a step from the sublime to the ridiculous, Tom, and but a sneeze from the nude to the naked. Your model may suit Tomasini, but will she photograph? You know some people are simply unphotographable, and they are not necessarily frumps at that. Has she posed outdoors, which you will find is entirely different from posing in Tomasini's studio, where the most disturbing thing is the garlic? Is she of the type you can use for maidenly Diana, or of such statuesque coldness that you can only cast her as Minerva? Just forget it, Tom; no one model can play so many parts, even diffused. You will have an auto truck load of accessories and no end of trouble. All the models I have had experience with have been very temperamental, except one. We carried that one into the studio, worked on him all evening, and the janitor let him out in the morning when he had slept it off."

Tom interrupted here, switched on the porch light and produced a sketch book. The sketches were funny; a sort of Indian sign language writing, but still identifiable. He had his poses all worked out, even to one in my favorite "arm chair tree", which I vigorously protested. He was going to use the lake also, and then in some of the sketches I detected poses very suggestive of some I had seen used by a very careful Chicago worker. This discovery led to others, and I accused him of copying, and begged him, if he could not produce something original, for the sake of Henry Ford, to quit before he began. Tom was losing his good nature by this time; and, on my again urging him to forget it, refused my proffered loganberry highball, gathered up the camera and left in a huff. I did not see or hear of him until some time in September, and did not get the whole story pieced together until I had seen Tomasini, who was then installing some anatomical freaks in a new motion picture theatre.

September 24: The model told Tomasini, and Tomasini told me, like the captain and the cook in the song. This, together with what I had already dragged from Tom, and pieced together in sequence, would make Tom's incursion into art sound like this: Early one bright morning, Tom's machine, with that enthusiast at the wheel and a canvas bundle on the rear seat, picked up a young woman at Sixth and B Streets, and turned east towards the Cas-

cade Range. Arrived at the end of the wood road, Tom had to make two trips with the stuff he had brought up the trail to our camp site. That meant four miles walking for Tom, and one for the girl. This over, he cut some poles and with the canvas, built a dressing room for the girl, in the east vine maple thicket. Handing her a bath robe of his and some moccasins, he motioned her into it, while he unpacked his camera, accessories and a lunch. On a lap robe he laid out the inevitable glass globe, urn, bow and arrow and toy balloon to be used as the customary bubble. He had it a' cannily planned oot, a' recht.

There at our camp site the light is not very good until after eleven o'clock; so when the model appeared, looking like a white squaw in the bath robe and moccasins, Tom proceeded to demonstrate the various poses he had in mind. I would have liked to have seen Tom, with a tin crescent moon balanced over one ear and his body balanced on one foot, demonstrating the huntress Diana, a la St. Gaudens. The model, part Italian, intelligent and willing to help, only needed a suggestion to grasp what was required, highly enjoyed his antics. Tom, however, was so much in earnest that he talked and gesticulated, and pirouetted until noon; only halting when he realized that he was hungry. He hurried the girl through lunch and was ready for work before one o'clock.

Diana was first on the list. He first placed the model knee deep in the bracken, then moved her over to the vine maples, then changed his mind and posed her, shooting an arrow into the alders by the creek. But none of them suited him; that kind of shrubbery simply would not look like the exotic foliage seen in an old master. He called the girl back, intending to try her against the dark trunk of a large fir. She started, but suddenly executed a rapid and undignified fandango and called for the bath robe. This handed her, she sat down on it, and for the next fifteen minutes removed thistle spines from her epidermis, while her face gradually lost its pleasant expression. Tom fidgetted around; he wanted to help, and was sympathetic, which was a strategical error. Repairs made, he again turned his camera on the fir, gave his model the tin moon, the arrows and the bow, and got her into position. On the groundglass the background looked better, so adjusting the camera, he corrected her pose, murmuring: "Hold it, fine, steady", when, with an angry, rasping noise, an animal bounded down the trunk of the fir and dashed out of view. The animal went in one direction, and the model took the opposite course. Tom lost another half hour getting her back and explaining that it was only a squirrel, but by this time her eyes were narrowing and she did not seem to be enjoying the outing. She suddenly slapped herself viciously on the shoulder and produced a mosquito as an explanation for the action.

Poor blundering Tom, again sympathetic and pleading, had only succeeded in getting her back to the fir once more, when suddenly the brush crackled on the hillside and the girl bolted into the vine maples, and, of course, into the clump that did not contain her dressing room. Tom said something explosive, rushing to the lap robe, and folded it over his assorted accessories, just as a tenderfoot fisherman crashed through the brush into the clearing. This cheerful unfortunate had all the equipment shown in the sporting goods catalogue, all so new it squeaked, and the poor nut was only fourteen miles from the near-

est fishing water. Tom took a violent dislike to him immediately, but the stranger was affable and talkative to the extent of an hour, an hour that seemed five to Tom, who was getting more monosyllabic and peevish every minute. Finally, he departed, wishing Tom luck with the mendacious sunset he was waiting for, and walking right over the bath robe and moccasins in the bracken without even seeing them.

Tom picked up these articles of wearing apparel and went after the girl. She was not in the clump of vine maples, but he finally found her down by the creek, weepy and mosquito bitten, half in and half hidden by a scraggly old bush. Tom attempted sympathy again, only to discover that the girl had temperament, and to spare. As they walked back to her dressing room, Tom heard things about himself, and about his art, things that he had not deemed possible. While she dressed, Tom gathered up his stuff; and, realizing the girl would not appreciate waiting while he made a double trip to the car, peevishly threw his collection of accessories into the creek. On the way to the auto she would not speak to him and was so sullen and red-eyed that he started back by way of the East Fork over the back road, as he did not want to meet anyone. At sunset he stopped at a highway inn; and, taking a dark corner of the porch, ate heartily, while she toyed with tea and salad. Then a solemn ride home.

Tom had not made a single picture, but he had accumulated a lot of valuable experience. And he was through with the nude until he can find some Arcadian glade, free from all pests—human, insect and vegetable,—and a model born and raised in those environments. Poor Tom: you may be sure that, if the nymphs of mythology ever existed, they were sun tanned female yokels of a nice, leathery hue; their hair streaky and bleached by the sun, their toes probably prehensile and their table manners nil.

September 27: Tom and the girl held one thing back from us, but "murder will out". Saw Dr. Seely at the club at lunch, to-day, and he made some remarks that betrayed a knowledge of Tom's exploit. Asked how he had become aware of it, he replied that Tom had just paid him a pharmacist's bill of three dollars, and one of eighteen dollars for his own services, on account of the model. That scraggly old bush down by the creek was poison oak.

And as touching their refusal to admit the nude, surely this argues an extravagant and unhealthy Puritanism, or else the brutality of those whom the human form is no longer a thing of beauty nor made after the image of God, as their Bible tells them, but a mere means for the sugggestion of immorality. Truly, we had better be frankly pagan still than descend to this depth of mediaevalism.—RALPH RADCLIFFE-WHITEHEAD.

And so Art is not something separate from our common life here, but may become to us, even if we are not ourselves artists, a real factor modifying and refining life by its constant influence. Thus Art for Art's sake is in the highest sense no false cry, for in Art are visualized and made manifest to us some of Nature's most noble work.—RALPH RADCLIFFE-WHITEHEAD.

Enlarging, and a Portrait

By O. L. Wahlgren, I. P. A. 4330

With Illustrations by the Author

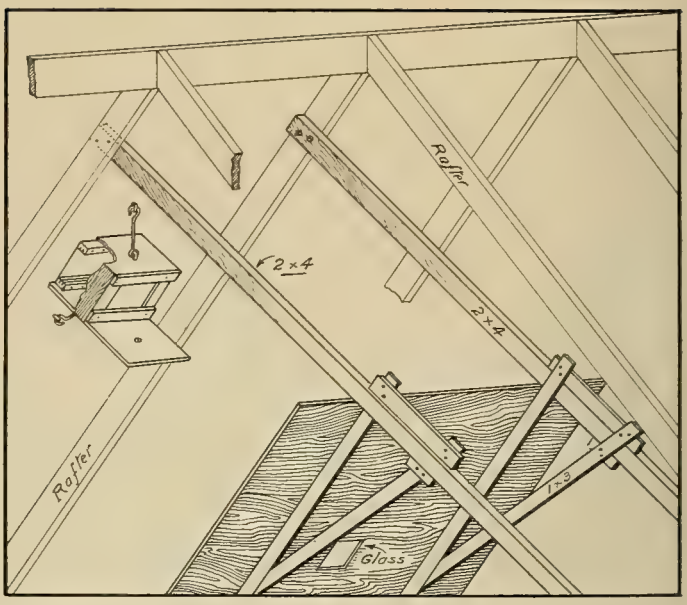
"How do you do, Miss W., come right in. Did you wish to see my brother? I will call him for you."

It was my sister talking and I left my enlarging to go down and greet my visitor without waiting to be called. "Hello, Oscar; are you busy? Here are some films from which I want some enlargements made; and, if the occasion is propitious, I would like to have a portrait taken of myself."

I asked her to be seated while I went upstairs for my camera, which was in position for enlarging. It took but a moment to lift it off its supporting shelf, put it in its case along with the tripod and some holders loaded with Seed's Graflex plates, and return to the room. "Here are some prints that you can look at while I am getting things ready for the picture. Take a seat right here and I will see what I can do in the way of a satisfactory lighting." I ran up the roll curtains of a double window that was a little in front and to the side of my subject, pulled down the curtain of another window that let light strike the lens instead of the sitter; told my subject "There, that's good", and gave two seconds exposure. I explained that I would show her a proof the next time I saw her, and prayed for good luck, as it was heavy and cloudy outside.

PORTRAIT OF MISS W.

The portrait turned out quite well, as can be seen from the reproduction herewith. On a brighter day a reflection would have been required on the shadow



side of the face, and possibly some diffusion of the light from the window side. With the same stop, f-8, I generally give a second exposure, or perhaps a trifle less with clear sky outside and near the middle of the day. The window is a double one on the north side of the house, there being another window in the west wall, which comes directly behind the sitter and is blocked out by being curtained. The sitter is generally placed about three feet in front of this curtained window, which brings her about the same distance from the side wall, and a little back of the further side of the double window, the camera being located just about even with the near side of the same window and at a distance from the same that will give the desired aspect of the face. An unfolded newspaper pinned to the back of a chair and placed on the opposite side and a little in front of the sitter, serves as a reflector to throw back a soft light on the shadow side of the face. If the light from the window is still too strong, a large sheet of tissue paper pinned to the sash bars so that it softens the light falling on the face, generally makes the lighting very soft and round. On some occasions the lower part of the double windows are blocked off in order to make the soft shadows of the brows and nose fall in a more downward direction, and this is done by simply pinning a dark blanket across from side to side. The background is simply the heavy curtains of the west window coming behind the sitter and photographing quite soft and harmonious, because it is in a much subdued light as compared to the sitter. This, despite the fact that to the eye that portion of the room looks quite bright and full of detail. The vase of flowers are on a small stand moved into position as shown, and the sitter, in this particular case, was seated on a sofa swung out into position from its place in the corner. With the light coming only from the double window, and that light falling on the sitter and the space in front of her, everything else in the room comes soft and under-exposed while the sitter comes out fully exposed and clear.

My visitor praised some of the enlargements among the pictures she had been looking over; and, as she was interested in photography I asked her if she would like to see how they were made. "Certainly!" she said; so we arose and went up stairs, taking the camera along.

The sketch herewith shows the arrangement of the apparatus. There has been fitted a small skylight near the peak of the low roof, and this light has a protecting cover that is let down when the apparatus is not in use, making it light and water-tight. Any carpenter can easily rig up such a small light without any great cost for either time or material. Of course, the glass alone is sufficient without the cover, particularly if fitted in a small sash such as is used for greenhouse ventilation, but with a cover over it, there is not so much danger of a leak resulting from sun and rain, not to say snow and more stormy weather. As the roof carrying my light faces south, it is necessary to interpose a sheet or two of opal glass, and these are provided for by fitting two pieces, carrying grooves, in front of the opening and inside the box-like camera attachment, as shown in the sketch.

This last, or box-like affair, fastens against the skylight with screw-eyes and hooks, the front having a shelf on which the camera is attached with the regular tripod screw. The strips at top and bottom of the front form a rebate, as shown, into which the plateholder, carrying the negative as described, is inserted. Films are used by placing between two pieces of plain glass (together with a black paper mask to cut off the light from around the edges of those smaller than the opening), for insertion in the holder in the same way as a glass plate negative.

Directly opposite, on the other slant of the roof, is arranged the support for the easel. As the peak of a roof rarely forms a perfect right angle, it is necessary to erect two false rafters or supports at right angles to the rafters, between which the camera box is fastened to bring it over the light opening. The drawing herewith makes the arrangement of these quite clear, I think.

The easel can be of any convenient size, preferably of soft wood, in which the glass-headed pins can be easily stuck to hold the paper in position. To one side of the center, to escape the center strut at the back, I have inserted a piece of plain glass with its front surface flush with the easel front. By standing behind this and using a focusing glass, I can easily determine when the focus is absolutely sharp. The weight of the easel being downward and not in a line with its surface, it is held in any position to which it may be moved; and, a slight springing of the supporting struts allows it to be lifted off.

The image is first focused roughly on the paper-covered surface of the easel, to get the proper size, then the final focusing is done with the focusing glass, after which a three-times filter is placed over the lens, while the paper is pinned in position. Having plenty of light and preferring to work in a stronger yellow light than bromide paper permits, I have used a great deal of regular Velox and Cyko paper. I like the effect better; and, by using my lens wide open I have turned out some very fine soft-focus prints where the subjects were such as to suggest such treatment.

There is no need of my going into any great detail, as every worker will have his own method of procedure. In reality, the arrangement is practically the same as usually advised with the exception that it is modified to utilize the peaked roof that most garrets present, rather than the flat ceiling of an ordinary room. The easel being supported from above, is more out of the

way and more convenient to use; while the use of a small skylight, as suggested, saves the trouble of blocking off a large window space and providing for an unobstructed source of light from the sky. The room is one that I can have all to myself, and having the apparatus up out of the way has advantages over the ordinary arrangement, I believe.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

A GOOD DEAD BLACK: Some time ago I ran across a formula for a dead black for the interior of the camera bellows, and I found it so easy to make, so inexpensive, and so satisfactory, that I have been using it for a variety of other purposes. I got a bottle of amyl acetate and poured the contents into another bottle with a wider mouth and a greater capacity. In this I dissolved old film that had been cleansed of the emulsion coating, and shredded, until about the consistency of syrup, by occasionally shaking. This is then thinned down to a good brush consistency with acetone, and then lampblack stirred in to give the depth of color. When I get everything blackened up that needs it, I am going to start in with some other colored pigment and see how it works as a finish for regular woodwork about the place.—E. R. T., New York.

GROUNDGLASS SUBSTITUTE: Wishing to test the accuracy of the focusing scale of a new film camera and having no suitable piece of groundglass handy, I hit upon the following "trick". A piece of clear glass was cut to the desired size, on this was spread a thin coating of common vaseline, and on this last a piece of ordinary waxed paper, such as most kitchens afford. This makeshift served the purpose admirably, as it had an unusual fine grain and was quite transparent. The material required is obtainable in many cases in which other substitutes are as scarce as the original article.—V. W. H., New Hampshire.

SPOTS IN PRINTS: One will, sometimes, in scraping out a spot on a print or enlargement, remove enough of the paper fiber to leave a spot that shows too plainly. The remedy is to fill up the hole so made with a mixture of starch and water, putting on but a little at a time and allowing it to dry before adding more. If too much is put on, scrape the surplus away; and, if the filling is too white, apply a little color to tone it down.—F. G. H., New Jersey.

BOTTLE FOR THE BROMIDE SOLUTION: A convenient bottle for the bromide solution is one of those sold as a container for toilet water, tooth washes, and the like, having the cork fitted with an aluminum screw cap over a glass sprinkling plug. By unscrewing the cap a little and just tilting the bottle, the bromide solution drops slowly, so that the desired number of drops can be easily counted.—O. L. W., Minnesota.

CAMERA CRAFT
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The Passing of W. H. Rabe

William Henry Rabe died at his home in Oakland, California, January third, 1919. This will come, we know, as a decided shock to workers along pictorial lines throughout the photographic world, few of whom are unacquainted with Mr. Rabe's work through either having seen examples of it at the exhibitions and salons in this and other countries, or through reproductions in the photographic press. While strong and virile, breathing the good taste and artistic appreciation of their producer, his pictures carried no suggestion of a seeking after effect through the introduction of the unusual or "freak" element in the least degree. With him, the common, everyday subject required but an appreciation of its artistic aspect and the photographic skill to catch and hold that particular phase; the one that had appealed to him and the one that he so successfully presented to the beholder of his pictures. A user of the most ordinary apparatus and of the most simple photographic processes, the technical part of his work was as direct and free from affectation as was his art. His passing is mourned by a wide circle of co-workers and a host of personal friends who appreciated him for his noble and generous spirit, as well as for his achievements in the field of pictorial photography. In his death the photographic world has sustained a loss that it can ill afford.

Flashlight Restriction Removed

We are just in receipt of a letter from our good friends, the James H. Smith & Sons Company, announcing the receipt of the following telegram:

"Washington, D. C., January 11, 1919.

"Jas. H. Smith & Sons Co.
"Chicago, Ills.

"Restrictions on Flashlight Powders removed from Explosives Regulation list January 9, 1919.

"Clarence Hall,
"Chief Engineer, Bureau of Mines."

Mr. Smith asks that we announce the good news in the first issue that goes to press, which we are only too glad to do, the information being such as will be most welcome to all who are using or desire to use flash powder for photographic purposes.

Camp Restrictions Removed

Too late for our last issue we were advised that new order, issued November thirtieth, permit the taking of photographs by either soldiers or civilians without special permits and subject only to such regulations as may be issued by the commandants. Paragraphs 9 and 10 of Special Regulations No. 102 are rescinded, and Paragraph 8 amended to read as follows:

"Ordinarily, photographs of military subjects concerning which no secrecy is required my be taken freely without restrictions other than such as may be imposed by the Commanding Officers at camps, ports, fortifications, armories, arsenals, fac-

tories, and other places connected with the national defence, in the interests of discipline and good order and with due avoidance of unfair discrimination. November 30, 1918."

Paragraph 8, to which the above amendment applies, reads as follows:

"VIII. The object of these regulations is to remove all unnecessary restrictions and grant the maximum of practical freedom to citizens in photographing matters of legitimate public or private interest in so far as is compatible with discipline and good order. Ordinary photographs of military subjects, concerning which no secrecy is requisite, may be taken freely about open camps without restrictions other than such as may be imposed by the commanding officer, having due regard to the avoidance of unfair discrimination. The term "open camps" is understood to include all divisional camps, replacement camps, and officers' training schools. In these places the intelligence officer shall have charge, under the direction of one commanding officer, of such details of registration, limitation, and inspection as may be found necessary for the proper control of civilian photographers within the reservation. The freedom to photograph in open camps may be revoked or limited at any time by the commanding officer when exigencies arise demanding secrecy."

The two paragraphs rescinded by these new instructions, read as follows:

"IX. None but official photographers of the Signal Corps, or other recognized bureau of the War Department or of the Navy, or of the Committee on Public Information, properly identified by a permit secured from the Director, Military Intelligence Division, shall be allowed to make photographs, moving pictures, drawings, or pictorial records of movements of troops, experiments in material, experiments in intrenchments or experiments in formations, fortifications, armories, arsenals, or factories connected with the national defense, except as hereinafter provided. The taking of photographs from kites, aeroplanes, or balloons, and the taking of photographs at ports of embarkation and at camps connected with such ports, and of troops aboard transports, are forbidden, except to commissioned officers with special permits from the Director Military Intelligence Division.

"X. Progress pictures for record purposes only may be made within the prohibited reservations hereinabove referred to by properly accredited civilian or other photographers having permits from the Director of Military Intelligence, provided, however, that prints of all pictures be submitted in triplicate to the Director of Military Intelligence. Under no circumstances may progress pictures be used for advertising, exploitation, or commercial exhibition."

This information, while somewhat tardy, will be of value to a large number of our readers, and particularly to those who can appreciate the possibilities presented by the breaking up of the camps, the home coming of our men, and the other activities that still characterize our return to a more normal military and naval condition.

Death of Lincoln L. Cossitt

Saturday, December fourteenth, Lincoln L. Cossitt, passed away in this city at the age of fifty-three. Mr. Cossitt has been identified with the photographic business since the early days when he worked at a bench that occupied no small portion of the single room that then housed the Eastman activities. He later founded the Western Camera Manufacturing Company of Chicago, putting out the "Czar" dollar camera and the first successful magazine camera in this country, the "Cyclone", so popular at that time. Still later, Mr. Cossitt organized the Columbia Photo Paper Company in the same city, making Cyko paper, which was afterwards taken over by the Ansco Company and moved to Binghamton, New York. Mr. Cossitt was perhaps one of the best informed men in this country on the subject of photographic emulsions and coating machines, he having built a number of these last for successful manufacturers of developing paper throughout the country. In his death the photographic interest has lost a valued worker and a man whom all who knew him esteemed for his high moral worth, his unfailing good humor and his kind and generous spirit.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Improving the Print by a New and Simple Method of Control

A print or enlargement (and I am primarily writing with regard to the latter) is seldom met with which does not call for some modification, or demand some slight control in its production, before it can be regarded as up to the standard required for exhibition purposes, or as entirely satisfying our own personal efforts in the presentment of our art. The "straight" print without control or modification may haply be a satisfactory picture once in a while; but nine times out of ten it leaves, in the opinion of its author, much to be desired. Even if it is entirely satisfactory pictorially, it may be that in careful after-consideration the mood of its presentation may not be quite in accord with the subject itself: or there may be some mood that would suit it better. From whatever cause, there comes a time in our progress when we wish to give expression to our own personal impulse: when we wish to state the recorded facts on our negative in our own particular way. This desirable end can only be accomplished by some form of "control" in making the print.

There are many methods of control: most of them familiar enough, all of them useful. The choice of different printing surfaces—rough surface paper and the like—the use of printing mediums such as carbon, gum, oil, etc., are simple instances of modification. Making new negatives of a different character from the original and introducing modification in the intermediary stage of the transparency: combining transparencies and making negatives from them, are further stages in the practice of control. I have not seen my own particular method described, at any rate in its entirety; nor do I know of anyone, outside my own circle to whom I have demonstrated it, who practises it. It has the merit of simplicity; the process is gradual and the modification progressive, so that success in carrying out one's intentions is under perfect control all the time. It calls for no apparatus and only for moderate skill; but of course it demands a right appreciation of values.

I am, and always have been, attracted by the charm of sunshine, and have striven to portray it in my photographic pictures. Low keys or high keys may have their votaries; but to me, sunshine, with its radiance and joyousness, gleaming in forest glades or splashing human habitations with its brilliance and color, is the very joy of life. Now I early felt that the photographic rendering of sunshine, however carefully calculated the exposure, however perfectly developed the negative, never did full justice to the radiance of the sun, when it shed its beams of light on human haunt or motley colored humanity: and I set out to discover the reasons for my dissatisfaction. I came to the conclusion that they were mainly due to the fact that the scale of contrasts was not sufficiently great. The high-lights representing brilliant sunshine were not sufficiently brilliant: they rarely conveyed the visual impression of brilliance at all. On the other hand, the luminous intensity of the shadows almost invariably seen in conjunction with brilliant sunshine, was only feebly represented by the dull opaque black of the photographic print.

Now light and shade are only relative qualities; and an easy means of increasing the apparent scale of contrast in our pictures is to be found in local reduction. If, for instance, a normally exposed and normally developed print is compared with another print from the same negative, in which a full exposure has been given and development carried to the point where just a slight deposit shows on the highest of the high-lights, and these parts are then "bitten out" with some reducing agent; we shall have at once two prints, the scale in one of which has been raised considerably at one end of the range of tone by this introduction of a

still higher tone. Similarly, if in making this second print we have used a weaker or dilute developer, our print will be softer all over, no actual blacks anywhere, but full of detail in the shadows.

The darker masses in the picture can be strengthened, either in mass or in detail. A touch of black—actual black—here and there restores once more the "sparkle" which was lost by deliberate weak development, thereby carrying the range of tone further down the scale at its lower end. All this can be done by the method about to be described: so that it would be extremely difficult, even for the expert, to detect any evidence whatever of the means of control.

Having made the print or enlargement, and having purposely slightly increased the exposure and developed so as to secure a print soft and full of detail, we proceed to "bite out" or accentuate the high-lights. Here, of course, it is important to recognize that one should have made up one's mind just where and what is to be accentuated. In the example given, the sunshine is pouring down into the narrow street from a high angle, as can be seen from the shadows thrown on the street itself; so we proceed to bite out all the parts of the buildings on the left that obviously are illuminated, and brilliantly illuminated, by the sunshine, taking care to note the accidental lights—those little touches here and there all over the picture where the sunshine should and does catch the buildings, etc.—so that it shall be consistent with the main scheme of illumination.

It is better, I find, to work on a perfectly dry print or enlargement. Taking a small clean sponge and some water, I moisten only the parts of the enlargement that I intend reducing, unless there happen to be local high-lights all over the print that require reduction. This general reduction of the high-lights, however, is to be avoided; because, if we confine our operations to some central object of interest in the picture, we thereby secure that emphasis on the main point of interest which is so necessary in "pulling together" or focusing attention upon it.

When the gelatine surface is quite limp, and the surface moisture has been absorbed with a piece of clean blotting paper, we are ready to begin the "biting out". For this I find nothing better than hypo and ferricyanide; although I am told that iodine and cyanide would be better, because less likely to stain the print. In my own hands I have not experienced any tendency to stain; perhaps because I confine myself almost exclusively to cream crayon papers, on which such tendency might not be noticeable. On the other hand, my first essay in the use of cyanide and iodine gave me a badly stained print. With proper precautions there should be no fear; and these precautions are simple enough.

In practice I simply take a few crystals of hypo, two or three pieces the size of a pea, and place them in an empty water-color pan (one of the small china dishes in which water colors are sold). Into this I drop a tiny crystal of ferricyanide. In another water-color pan I keep a largish crystal of the ferricyanide, for use should the solution become weakened or fail to "bite". The strength of the ferricyanide solution is tested on a spoiled print; I generally use the test exposures for this. It is diluted should the action be too rapid. It is much better to make it work slowly, because it is then more easily checked.

A couple of sable brushes, Nos. 3 and 5 in quill ferrules, a small piece of soft sponge, and a dish of clean water are all that are necessary. The sable brushes are expensive. No others are so good or so satisfactory to work with; although one can get along perfectly with one—the No. 5 for preference, if cost is a consideration. Having proved by trial the strength of the reducer, we begin "biting out" those high-lights that require accentuation, using the brush charged with reducer from the china pan. Where there are clean, well defined lines, the reducer will not "creep", if the print has been dried off with blotting paper on the part to be treated. The moment reduction has gone far enough, further action is stopped by squeezing a pool of water from the sponge over that part. The sponge should be held in the hand all ready for that purpose. May I repeat that it is better to go over the parts once or twice rather than have the action of the reducer too fierce? The print may be spoiled if the action is too rapid. A little practice on a spoiled print will be of more value than any written instructions: trial and error are the best guides.

When one part has been satisfactorily reduced to the required degree the part is

gently sponged over with two or three changes of clean water, and we proceed to the next part of the enlargement to be similarly treated. Where local reduction has to be only general a little surface moisture on the print is an advantage; but where there are sharply defined lines to be followed, the surface of the print must be dried off with clean blotting paper every time, to prevent capillary attraction. In practice this is really quite simple, and presents no difficulty whatever.

When all the parts have been treated, we subject the print to a preliminary wash in clean water; then give it ten minutes in a fresh hypo bath; and finally wash it thoroughly and allow it to dry. It will then be ready for the final process of control. The print should now show a very marked increase in the brightness of those parts of the picture representing actual sunshine.

The next stage in the process of modification is to give a similar increase at the deeper end of the scale. Here again a little skill in the use of the brush and a little discrimination and judgment are all that are necessary.

For this purpose I have found ordinary oil colors (artists' colors) quite suitable. Messrs. Winsor & Newton make a charcoal gray which exactly matches the ordinary untoned bromide print. In practice, I have not found it suitable, however, and I prefer to make my own, which I do by mixing together about equal parts of vandyke brown and ultramarine blue, using a small palette knife and mixing on a spoiled quarter-plate, taking a little more of one or the other color, until, trying it on a spoiled print, I find I have secured an exact match. Enough pigment to fill a small half-pan will do any number of prints; but I generally make it up each time I require it, throwing away the surplus, unless I am likely to want it again in a few days. This, of course, should be done in daylight: and in matching the color the lighter shades only should be chosen, where the slightest difference in tone is more clearly noticeable.

To make the match, I take a tiny piece of the mixed color, and place it on a perfectly clean part of a china palette: two clean quarter-plates bound up with a sheet of white paper between them will serve the purpose. Taking the clean brush dipped in petrol, I reduce a little of the pigment with it, and try it on some part of the print to be strengthened. If it is colder in tone than the print, I take a little piece of vandyke brown, and incorporate it thoroughly in the already mixed pigment, then test it again, adding whichever of the two colors is found necessary to give the exact shade of the print. When this has been secured, all is ready to begin to give the necessary increase of depth to the lower tones of the picture.

A preliminary step is to prepare the print, by taking a small tuft of cotton wool and a little ordinary retouching medium. Any of the ordinary retouching media will do; they consist mainly of turpentine, and that is the essential element. This is rubbed over the whole surface of the print, and dried off with a cotton duster until there is no trace of oiliness. Leaving it for a few minutes to get quite dry, we may then begin to strengthen the shadow detail, gradually building up the photographic image with the oil pigment where taste dictates that it requires strengthening.

The broad masses are treated first: smaller detail afterwards. The pigment should be applied in the masses with a small tuft of cotton wool moistened with gasoline or benzine: and the pigment, reduced with the same medium, applied by rubbing it locally over the print, so that an even tone of color of the required depth is applied to the print. Should this tone cover any small high-lights, they may be left alone until the applied color is dry. They can then be lifted out by means of a piece of soft velvet rubber. Rectangular masses, or straight lines, can be worked up by using a thin card to protect the surrounding areas.

The important thing to bear in mind in applying the color is that only a very little of the actual pigment is necessary. Gasoline or benzine is to be used for reducing it, in precisely the same way as water is used in water color painting. Only a tint of color is needed: and the small ball of cotton wool must not be more than moist. Otherwise we shall not be able to lay an even tint without streaks. If we go wrong, a clean piece of wadding moistened with turpentine or benzine will wash it off. If the tint is laid too deeply, we can take another piece of clean cotton wool and rub it down.

For the smaller detail, the pigment should be laid on with the sable brush, not too moist; and for small areas, such as the doors

and shutters seen in the buildings of the example given, the color may also be laid on with the brush, letting the benzine evaporate until it is nearly dry, when the hard, well defined edge which the brush leaves can be softened down by gently dabbing over the surface with a dry ball of the cotton wool. In doing this, a little skill is necessary to avoid lifting off all the color that has been laid down, which happens if it has not just reached the proper stages of dryness, or if the cotton ball is itself too moist. A little practice, however, will soon enable one to judge when these conditions are right, and further pigment can be added if it has not been sufficient in the first instance. In practice, I follow every particle of brush work with this dabbing off with the cotton wool. It takes away the last trace of the application of color to the print if it is properly done.

It is astonishing the value which just a little touch of actual black color here and there on the print will give in imparting strength and depth to the whole. Besides, the mellowing influence of even a slight shade of the pigment in the broad masses imparts that subtle thing called "quality" to our print which no other method will give; and I have found in the method described, a form of "control" easy of execution, and facile and satisfying to a degree beyond my most sanguine expectations. If the directions are followed with judgment, and the principles rigidly understood, as I have already said, the results obtained by its means cannot be distinguished even upon close examination, from a print produced by orthodox means.—W. Bullock, in *Amateur Photographer*.

The Eye and the Plate

It takes most people months, or even years, to learn how to make allowance for the difference between the visual value of the lighting of any object which is to be photographed and the photographic or actinic value. To a certain extent this is due to the defective color-sensitiveness of the plate, and this may be rectified by using a more or less orthochromatic plate and a suitable light-filter, but beyond this lies the actual difference in scale value which always exists between the seen and photographed images. This is usually to be seen to the fullest extent when an artist, knowing nothing of photography, lights a figure as he would do for painting and requests a photographer to make a negative of it. Almost invariably the result is disappointing, the lights being harsher and the shadows heavier than the painter anticipated. Many photographers never learn this lesson, and being on a wrong track from the beginning, imagine that the fault lies in the plate, the exposure, the development, in fact, anywhere except in the subject. A moment's reflection will show, that when we look at a subject we can take time to see shadow detail, without having the eye distressed by the brilliancy of the high-lights, but with the plate this is not so. By judicious exposure and development we may secure a technically good result, but if we compare a finished print with the original under exactly the same conditions of lighting we shall see that it is not a true reproduction. Probably few photographs are submitted to this ordeal, but those workers who feel that they are not realizing their ideals will find the practice to be helpful.—*British Journal of Photography*.

Bright-Shadow Photography

In Germany, apparently, they are not so much preoccupied as to forgo all research and interests which are not directly connected with the war; and we learn that a German professor, Linder, has been investigating what he calls bright-shadow photography and getting some interesting results. His bright-shadow photographs are obtained by means of parallel rays of light and instantaneous exposures; and are of value in revealing the intimate structure of natural objects, not the superficial structure which ordinarily monopolizes the eye. Professor Linder noticed some animalcules climbing the walls of a flask, and forming a network with their continual serpentine motions; so he placed the flasks in the rays of an arc light, taking care to cut off all side lights, and gave a very quick exposure—one-ninetieth of a second. The first exposure was successful, and showed with great clearness the network figures, and the separate wandering cells within their meshes. This clearness was the result of the parallel illumination. Under this treatment records of some of the commonest objects in nature, a bird's feather, for instance, became exquisitely delicate of outline.

Stripping Negatives For Storage As Gelatine Films

The conditions for the supply of dry plates have naturally turned the thoughts of photographers towards methods which may be employed for returning the stipulated quota of glass whilst retaining in their possession such negatives as they judge will be of value from the point of view of re-orders. In ordinary times one would not recommend as a working system the stripping of the negative film from its glass support and its preservation in the form of a thin sheet of gelatine without other support. But it can readily be understood that many studios may be so circumstanced as to find it desirable, if not necessary, to adopt such a plan as this; and therefore it may be of interest to say something on the practical means which may be adopted to this end.

The stripping of a gelatine film from its glass support is by no means a difficult business, and the process which for some years past we have regularly recommended in the *British Journal Almanac,* namely, that of Holcroft and Middleton, is one which is thoroughly reliable. But it is slow, it is not adapted for the stripping of films which are to be preserved as such, and, further, it demands the use of methylated spirit. Of these three different accounts it is not a method which can be usefully applied for the purpose now under consideration. Instead, it is necessary to employ a process in which the gelatine film is thoroughly tanned before removal from the glass; that is to say, so hardened that it can be handled and stored as a thing by itself without fear of being damaged under such reasonably careful treatment as so delicate an article requires. For this purpose the most suitable method is a modification of one of which very complete working details were given some time ago by R. B. Fishenden, of the Manchester College of Technology, by whom it was worked out. In this process the gelatine film is first hardened in a bath of formaline and then detached from the glass by means of a similar bath of formaline, but containing also hydrofluoric acid. The advantage of the process from the point of view of those who may require to treat considerable numbers of negatives by it is that negatives may be treated in batches in the plain formaline bath, whilst the action of the second bath, containing hydrofluoric acid, is rapid. It should be said that we would not claim for the process a degree of reliability which may be ascribed to the Holcraft-Middleton method, meaning by reliability the power of the process to strip with certainty even negatives which are of considerable age, and may have become horny and hard with time. But we do not think that any inferiority in this respect need trouble photographers in the present circumstances, since from the nature of things the negatives to be treated will be those of comparatively recent date, and will not have become hard and horny with time.

The first step in the process is to cut through the gelatine film to the glass with a sharp rigid knife close to the four edges of the plate in order to cut away any emulsion coating which may be adhering to the edges of the glass. The plates are then immersed in formaline, the commercial liquid as purchased, for ten minutes or so. The formaline bath may be placed in a grooved tank, and is best used in a tank, not only on account of handling a number of plates at once, but also because the vapor of the formaline can be more or less prevented from escaping by means of a lid on the tank. After this first treatment, during which the gelatine film becomes thoroughly hardened, the plates are transferred, or only so many of them as can be expeditiously handled, to a similar bath of formaline to which commercial hydrofluoric acid has been added in the proportion of two per cent; that is to say, one-half ounce of the acid to twenty-five ounces of the bath. This second bath should be used in a vulcanite dish. It is necessary for the negative to remain in this second bath only for the matter of twenty seconds or so, after which the negative is removed from the solution, given a rinse under the tap, and the narrow edgings of gelatine then stripped off. It is then given a further short wash in order to remove traces of acid. This washing is best done in a flat dish into which a gentle stream of water is led; washing in a tank, particularly with any vigorous flow of water, is liable to disengage the film from the glass prematurely.

The negative is now in a condition to have its film removed from the glass, which is done by laying upon it a slightly larger sheet

of tough paper, such as good writing paper, previously soaked in water. The paper is brought in firm contact with the negative by careful use of a squeegee. Undue action of the squeegee must be avoided, otherwise the negative is liable to be distorted. A corner of the paper is then raised, and a thin pointed knife used to ensure the corresponding corner of the negative adhering to it.

In order that the film may dry without shrinking or distortion it is necessary to have it upon a glass plate, and a supply of such plates sufficient for dealing with a batch of negatives dealt with at a time requires to be kept. These plates are thoroughly cleaned and polished with French chalk, as is done when using them for the glazing of prints. The gelatine film, still thoroughly wet and adhering to the paper, is then brought down upon a clean glass plate, and, again by means of a thin pointed blade, the paper is removed, leaving the film upon the glass. The film then requires to be left to dry slowly. Any hurried drying is certain to lead to crinkling of the film, and for the same reason it is necessary to avoid drying in a place where there are irregular currents of air. The best plan is to lay the glass plates exposed to the air of a moderately warm room, the windows and doors of which are closed. Those who may have had occasion to dry the now perhaps forgotten Cristoid films will recognize the need of this precaution, although the ordinary film of a negative is thin in comparison with that of a Cristoid film, and dries in a correspondingly lesser time and with less liability to distortion. When the film is perfectly dry it is peeled off the glass, and can be kept in its then flat state by storing it where it will be subjected to a certain amount of pressure. One or two other hints may perhaps forestall any difficulties which may be found in this process. One is that negatives which may have been handled with greasy fingers should be first cleaned up by rubbing over the surface with benzene applied with a tuft of cotton wool. Negatives which have not been too heavily treated with retouching medium will strip readily, and some experience with existing negatives will show what amount of retouching they may carry without leading to difficulties in stripping or necessitating the removal of the retouching before the process. In the event of negatives being required for further prints, the film negative can, of course, be supported in the printing frame like one on celluloid film, whilst if it has been necessary to remove the retouching medium (calling for further retouching) the negative will require to be soaked in a one per cent or two per cent solution of glycerine before being squeegeed down upon a glass plate which has been flowed over with a weak solution of gum, this coating serving to hold the film to the glass, and thus making it practicable to carry out any retouching work which could not readily be done upon the negative in its film condition.—*British Journal of Photography.*

Canvas Effects

We saw some prints the other day that had quite a novel and somewhat pleasing effect owing to their resemblance to a canvas surface. The worker who made them explained that their production was quite simple. He had photographed a piece of artists' canvas, giving it a strong side lighting, and then used the resultant negative to give a supplementary exposure to the paper upon which the desired print had been made. In the case of enlargements, it is simply interposed; in fact, if the canvas-grain negative is made on a film, it can be interposed between the negative and the paper in the same way. Of course, there must be a certain degree of harmony between the two; a strong canvas negative and a weak landscape one, or vice versa, would not give a satisfactory result.

"Wellcome's Exposure Record, 1919"

The new or 1919 edition of this valuable exposure record book and exposure guide, has, as usual a wealth of photographic information added for good measure. The calculator has itself been improved, so that while but one turn of the disk is needed as before, the correct exposure appears directly opposite the stop. The chapter on exposure makes that vexing question quite clear and the special notes and tables cover all unusual conditions quite thoroughly. The truth of the matter is, this pocket compendium is so well known that it seems idle to try and describe it fully. As heretofore, practically all dealers stock the little book; and, as heretofore, practically all careful workers will secure a copy for a pocket companion.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

The Right Sky Tone

Plain white paper does not represent the color of the normal sky, or even the abnormal one, for that matter. And yet a tinted sky over a landscape that is obviously basking in full sunlight, does not look just as it should. The trouble is that while the sky is much darker in tone than white paper, it projects its own light towards the eye, while the white paper can project only a part of the light it may be allowed to receive, the light strikes it. The photographer is therefore confronted with a difficulty for which there seems to be no remedy, at least, in the case of prints upon paper or other support. With a lantern slide or a window transparency the difficulty does not exist to near the same extent because the light passes through the picture and a fairly good reproduction of the sky as a source of light may be secured by reason of the transmitted light used in showing them. One way of overcoming the difficulty is to avoid showing the sky when one desires to portray strong sunlight effects. If the pictures of this kind that have won praise at the exhibitions be stduied, it will be found that almost invariably this plan has been followed. On the other hand, where the desire is to picture a scene in a softer light, the effect is enhanced by rendering the sky quite dark in tone, at least to the extent that a near white building, tree trunk or the like, is decidedly lighter. This is quite easy if a proper ray filter is used in connection with an orthochromatic plate. Here, by including a sky that is permissibly dark, the effect is improved; while with the other case, that of the brilliant sunlight, the opposite plan, the exclusion of the sky is the proper one. And all this has nothing to do with the clouds that some workers are so fond of inserting into every landscape. Clouds are too often a delusion and a snare that defeat the end for which they are employed. Show your non-photographic friend a charming bit of landscape, say a pleasing piece of road over which you happen to be riding. A day or two later ask him about the scene. He can describe it, can tell you just how it appealed to him; but ask him if there were any clouds in evidence and he will not know. The average person never really "sees" clouds except as a vivid sunset or perhaps some particularly striking example of "mackerel" or "mare's tail" formation. Yet in the average photograph showing clouds, the clouds are the most eye-demanding part of the picture. Quite unnatural, to say the least. And why do we show so much sky space above our landscapes, anyway? We do not go along looking at the tops of the trees and the sky above; we are more concerned with things nearer the ground. Ask any individual to tell you the outline of the top of any large tree which he passes under every day of his life, and he has to admit he does not know. But ask your photographic friend to go out and take a picture of the scene and the most persistent line in the composition will be the outline of that tree top against the sky. In looking at the picture the eye keeps following that line or wandering in that direction. Cover up the upper half of the print and the scene looks somewhat as it does to the eye, because the eye is confined to that aspect of the view that it concerns itself with as one walks along the road besides which the tree stands. What we want in the picture is the same confined view that the eye sees. On the other hand, when the intention is to portray an expanse, a scene on which the eye naturally includes a wide scope, a view that gives one a feeling that he is looking at "all outdoors", a generous, even a liberal, expanse of sky is required if the picture is to be at all true. Do not trim off your skies just because they do not contain clouds or leave them on because they do. Consider the sky space as part of the picture and use more or less of it, as the requirements of the case may de-

mand. While a suggestion of clouds, more or less strong, may be quite desirable as a variation from a too flat expanse of sky, there is just as much inconsistency in making the sky compete with the landscape, as in making a background too strong for a portrait.

Doing Some Repair Work

He came in the other day and opened the conversation by asking if I remembered that old 8x10 he used to use, the one that was about falling to pieces because every screw in it was loose. Well, it was all fixed up; worked smoother than a new camera, and now he wanted to get a new bellows for it, as he was going to use it regularly. Could he buy a stock bellows, or where could he get one made? It seems that a mutual friend of ours had taken pity on him and spent about half an hour and a little "know how" in my visitor's behalf. He took out samples of the several sized screws and sent our friend down to the hardware store to get new ones of the same length, but a size thicker, if possible, as it proved to be in about half the cases. Where he couldn't get the thicker brass screws that would hold better, he replaced the old ones after first whittling a soft wooden plug to fit the holes and glueing it in. In some of the holes, those in which the diameter of the screw was large in proportion to the amount of play, he just put a bit cut from a cork. When all was done the camera was indeed a greatly improved piece of apparatus. My visitor had long ago thought of getting a new bellows, but the rather rickety condition of the instrument did not seem to make so doing advisable. Now he is having a new bellows made, and I expect the demand for 8x10 plates will about double here in this town.

Quick Washing of Plates and Paper

A recent visitor claims to have the prize method of removing hypo solution from his plates and prints. He purchased one of those ordinary lawn sprinklers, about the size of half an orange, that screws on the end of a garden hose. This was mounted on a wedge-shaped block so that the spray was directed at an angle, falling upon a sort of draining board, also at an angle, at the end of his sink. Placing the plate or print on this board and turning on the water through the sprinkler gives him a spray that strikes with some force and proves much more effective than the usual soaking in running water.

An Excellent Intensifier

Rajar Limited of Mobberley, England, in its last trade notes, gives, for the benefit of its dealer friends doing amateur finishing, the following formula for a mercuric iodide one-solution intensifier that should find a place on every busy photographer's shelf. It gives considerably increased contrast to a thin negative, is particularly safe to use, and has the advantage of being a ready-at-hand solution that keeps well, and can be used over and over again. To make up the solution, take say one hundred grains of mercuric chloride, crush and place in a small linen bag. Suspend this in a twenty-ounce wide-mouth bottle near the neck, and fill the bottle with hot water. When dissolved, which takes some time, remove the bag and burn it. Then add a few crystals of potassium iodide gradually, shaking the bottle all the time. The solution assumes an opaque salmon color, and the iodide must continue to be added cautiously until the solution becomes fairly clear and transparent, but with still a trace of red color left. Add no more iodide, but drop in a small crystal of hypo about the size of a pea and the intensifier is ready for use.

The negative, after the usual fixing and washing, is immersed in this bath for a few minutes, washed and dried. To ensure permanence the negative can, after being intensified and washed, be placed in any developer for a few minutes, washed and dried, but for ordinary work this is not absolutely necessary. The negative may become yellow in time, but this does not affect its printing quality, and it is possible to almost discharge this color without altering the contrast by placing the plate in a very weak solution of hypo. If the negative contains traces of hypo no harm will be done; the results are reasonably permanent and cannot give stains, and the intensification can be removed if desired by simply placing the negative in the fixing bath. After intensifying, local reduction is easy, as parts of the intensified image can be painted over with a brush charged with hypo solution. It is also excellent for giving "sparkle" to lantern slides. It is reasonably permanent, and cannot give stains.

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4561—R. O. Shillinger, P. O. Box 364, Youngstown, Ohio.
Class 2.

4562—August K. Stein, Box 101, Claremont, Va.
Class 2.

4563—D. H. Stover, 313 S. McKean St., Butler, Pa.
3¼x5½, developing paper, of scenery, fires and railroad wrecks; for the same. Post cards only. Class 1.

4564—W. P. Douglas, Humboldt, Tenn.
Any size, various papers, of many interesting subjects; for anything of general interest. Class 1.

4565—Harry S. Drake, 723 Obispo Ave., Alhambra, Cal.
Class 2.

4566—H. F. Livengood, R. F. D. No. 1, Paradise, Texas.
Class 3.

4567—G. W. Johnson, 30 Mitchell St., Jackson, Ohio.
Class 3.

4568—Murle J. Markham, Box 434, Grangeville, Idaho.
Class 2.

4569—Niles N. Fritz, Box 146, Lehighton, Pa.
3¼x5½, various papers, of landscapes; for the same. Prints or post cards. Class 1.

4570—T. H. Davidson, P. O. Box 611, Coon Valley, Wis.
Class 2.

4571—Joseph H. Moore, 4025 Warwick Blvd., Kansas City, Mo.
Class 2.

4572—W. K. Van De Grift, 218 W. Berry St., Fort Wayne, Ind.
Class 2.

RENEWALS

2203X—W. D. Leonard, 519 W. Perkins St., Hartford City, Ind.
3¼x4¼ and 4½x6½, various papers, of public buildings, schools, Fourth of July and centennial parades; for anything of general interest. Class 1.

2500—B. P. Angle, Augusta, Wis.
Wish to exchange artistic views, portraits, and figure studies. Class 1.

John R. Palmer, 147 River St., Saranac Lake, N. Y.
Class 2.

4440—H. J. Shipton, 32 Fisk Ave., Winfield, Long Island, N. Y.
2⅞x4⅞, 3¼x4¼ and 4x5, various papers, of land and seascapes, outdoor genres, and general views; for the same, no fuzzies or straight portraits. Enjoy correspondence. Class 1.

4462—Edgar M. LeBaron, Box 617, Mesa, Ariz.
Up to 8x10, various papers, of scenes in this state, some rare ones, oil painted in natural colors or not painted; for figure studies, draped or undraped. Class 1.

4475—Branson M. DeCou, 167 N. Grove St., East Orange, N. J.
Finest quality lantern slides and original negatives for Western scenery to exchange for the same. Class 1.

CHANGES OF ADDRESS

4524—Frank M. Hinman, 338 North 15th St., Allentown, Pa.
(Was erroneously printed in January issue as 338 N. 5th St.)

2455—Elliott S. Blakely, 42 Lincoln St., Lynn, Mass. (Was 26½ Union St.)

4256—J. A. Currie, 3224 West St., Oakland, Cal.
(Was Washington, D. C.)

WITHDRAWAL

4490—Joe Thornton, R. R. No. 2, Keene, Ont., Canada. Traveling.

OUR BOOK SHELVES

"Living the Creative Life"

Joseph H. Appel, the author of "My Own Story", that was so well received some few years ago, has given us another able and inspiring work under the above most applicable title. Himself a hard-headed business man with little inclination to become subservient to the purely idealistic theories of the dreamer, he passes on to his readers a measure of sound advice upon the relationship between our spiritual forces and our daily life and activities. He seeks to aid us in getting what we should out of our lives; to grow, to live the life that is rounded out and complete. To simply say that his book will repay the careful reading of the intelligent individual who is desirous of learning the way to a larger life, to one that is more full, is to state our convictions in the mildest terms. Mr. Appel is, it would seem, an admirer and follower of the late Judge Thomas Troward, whose lectures in Edinburgh and London on the relation between mental action and material conditions, and kindred subjects, proved so interesting as to compel their publication in book form. This alone, not to mention Judge Troward's commendation of the author's former book, should assure the reader of the value of this new work. Published by Robert M. McBride & Company, Union Square North, New York. Price one dollar and fifty cents net; postage ten cents.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

F. H. Hanson of Stockton is sailing along just as busy as he was before the holidays.

We are glad to learn that Mr. Schneider of the Logan Studio, Stockton, is about again.

Scott Snowden of Modesto was particularly busy around the holidays, and is enjoying a marked degree of continuance thereof.

After a busy nine months at Menlo Park, Harry Baker is now located at 611 East Main Street, Stockton, with a full line of kodaks and supplies.

Colman Schwartz, who is "some hustler, believe me", is still doing the road for the Howland & Dewey Company of Los Angeles.

Mose Grady, Hartsook's king pin manager of the San Joaquin Valley studio, was in San Francisco for a short stay during last month.

C. C. King and wife were kept busy as bees in their Tulare studio during the holidays.

L. M. Powell's two studios at Hanford report big holiday business and a good holding up (of business, not of the patrons), since then.

Paxona of Fresno is doing some very fine work in colors, and it is being appreciated by his patrons.

All the Fresno photographers were busy during December and they have not had much rest since, according to reports.

H. James, the well known San Francisco colorist to the trade, is turning out some very fine miniatures on ivory.

Ernest Forsmark commandeered the whole family during the Christmas rush. They all proved most efficient assistants, even the young daughter doing her share.

Dr. Lipman With De Roos

A. Lipman, O. D., has installed a complete and modern optical department at his new location with Henry G. de Roos, 88 Third Street, this city. Here he will be pleased to meet all his former patrons and, as heretofore, give all his patrons the best optical service that experience and thoroughly scientific equipment and knowledge, combined with care and conscientousness, can afford. We can recommend Dr. Lipman to all in need of the services of an optician or optometrist, and he has our best wishes for the increased success that we feel his new and more centrally situated location will afford.

Death of Maurice Black

Thursday morning, December nineteenth, following an illness of over three months, Maurice Black, president of the L. Black Company, opticians and photo supplies, Detroit, Mich., passed away at his home on Second Avenue. Mr. Black, who was born in Toledo, Ohio, forty-four years ago, came to Detroit over twenty years ago and engaged with the L. Black Company, a firm established in 1860; where, despite his interest in and attention to business, he found time and opportunity to indulge in civic and charitable work, doing both in a quiet and unostentatious way. A wife and three children mourn his loss, as does also a wide host of friends who esteemed him for his sterling worth and character. As a member of the Board of Commerce and the Detroit Yacht Club, he was loved and respected by his associates and all who knew him held him in highest regard.

Hypo-Alum Toning

The hypo-alum toning process is becoming increasingly popular and deservedly so, as it has proven a most satisfactory method for bromide and gaslight prints, being simple to work and giving regularly good results. There is no degradation of the whites, and very little variation in the color if the prints are properly exposed and developed. Perhaps the only criticism leveled against the process is the tendency to give very cold sepia or purple tones, and in this connection we recently carried out some trials in order to

ascertain the best method of producing warm brown tones regularly.

Differences in the proportions of hypo and alum did not make any material difference, and there was no difference in the final tone of prints that were placed direct into the hot bath and those placed in the cold solution and gradually heated up. The amount of potassium bromide in the developer appears to influence the color, but, in our opinion, the final color is mainly influenced by exposure and development. For warm tones the exposure should always be slightly on the over side, and development stopped a little short of the usual time for a black print. A print correctly exposed and fully developed to a good black will invariably give a cold purplish color after toning. What is wanted is a nice balance maintained between exposure and development, and this is an instance where the personal skill and experience of the printer is useful.

To briefly summarize our trials we recommend the following: The amount of potassium bromide in the developer should be not less than one-half grain to the ounce; exposure should be slightly on the over side; development should be stopped just short of full; old toning bath should be retained and strengthened occasionally with fresh solution; and, the ideal print for toning should be slightly greenish in color when it leaves the fixing bath.

A suitable fixing bath for prints that are to be toned in hypo-alum is:

Strong sulphuric acid, two fluid drams in water..... 2 ounces
Add to this sulphite of soda, two ounces in water..... 6 ounces
Pour mixture into hypo, sixteen ounces in water.....48 ounces
Finally add chrome alum, one ounce in water ..... 8 ounces

Very fine tones are obtained on gaslight papers, the color again being strongly influenced by the exposure and development. It is a process that demands the most perfect adhesion between the paper base, its baryta coating and the emulsion, in order to resist the action of hot solutions.—RAJAR LIMITED.

The Illinois College of Photography

The College Camera Club has opened the new year with especially bright prospects, better equipment, more money in the treasury. With E. H. Coultas as president, and new enrollments every day, we predict a splendid year ahead for the club.

Joseph Shawer, 1915, is still in France, as are also R. K. Wilmarth, Albert Philpot, J. N. Hillhouse and Alfred Summers.

Recently we heard from Fred J. Kopp, 1902, one of the charter members of the College Camera Club, now located at Fort Worth, Texas. Mr. Kopp especially mentioned the C. C. C. as one of the most pleasant features connected with his stay in Effingham.

Where the Camera Has Been

A dramatic critic, who apparently can't see the moving pictures through the Mount Wilson telescope, said recently that the claim of the moving picture people that the camera went everywhere was an exaggeration.

Of course, the camera hasn't gone everywhere. It hasn't gone to perdition yet, notwithstanding our critic would apparently like to send it there, and I don't think there are any cameras in heaven, but then the camera is comparatively only a recent invention. Give it a chance. It has, however, been:

At the South Pole.

Almost to the North Pole.

At the bottom of the sea.

In the crater of more than one volcano.

In the jungles of India, Africa and South America.

Three thousand feet underground in the Calumet and Hecla mines.

In balloons and aeroplanes as high as sixteen thousand feet above the earth.

In the tombs of Egypt.

In the tundras of Siberia.

In the uncharted regions of the upper Amazon.

In the front line trenches and under fire of enemy guns.

In the deserts of Sahara, America and Asia.

On the top of the Himalayas and in the valley of the Dead Sea.

Among the furnaces of the steel mills and in the swamps of the rice country.

On battleships and railroad trains, in palaces and in hovels, among the cannibals of the South Seas and in the vaults of the world's treasuries, in factory and in school room, in clinic and in lecture room.

Where does our critic want the camera to go?—*Portland (Oregon) Telegram.*

XXVI No. 3 MARCH, 1919 Price, 10 Cents

CAMERA CRAFT

SAN FRANCISCO
CALIFORNIA

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One-ounce container	1.50

ANSCO COMPANY Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

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5x7 **Wollensak Vesta portrait lens,** f-5, 10-in. focus, in barrel, new, list $37.00 ..... now 25.00

5x7 **B. & L. Plastigmat,** f-6.8, Convertible, in Volute shutter, list $67.50 ..... now 37.50

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5x7 **Wollensak Velostigmat, Series I,** f-6.3, in Optimo shutter, new, list $54.00 ..... now 29.75

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6½x8½ **Wollensak Extreme Wide Angle,** in barrel, new, list $19.50 ..... now 8.75

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8x10 **Wollensak Velostigmat, Series I,** f-6.8, 12-in. focus, in Wollensak Auto shutter, like new, list $80.50 ..... now 40.50

8x10 **Velostigmat Wide Angle, Series III,** f-9.5, in barrel, new, list $49.50 ..... now 23.50

8x10 **Goerz Celor,** f-5.5, 12-in. focus, in barrel, perfect condition, list $126.00 ..... now 90.00

Continued on Next Page

INTERESTED
By THE LATE
W. H. RABE

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXVI MARCH, 1919 No. 3

A Few Pictures Reviewed

By A. T. De Rome

Illustrations from California Liberty Fair Exhibition

In glancing over pages carrying pictures, have you not found your subconscious self enjoying some pleasurable thoughts or impressions created perhaps by the way in which the masses of light and shadow play against each other. Possibly you have said to yourself: That's beautiful; or perhaps, that's artistic, or used some milder word, such as pleasing or interesting. And then, if you are of a philosophical turn of mind, you asked yourself: Why do I admire this; what is there about it that makes such a strong appeal? Doing this, haven't you nearly always come to the conclusion that the reason lay in something within your own consciousness, something which has been awakened, a calling to life of something out of your past experience, the revisualizing of some scene that has before given you particular pleasure.

Then again, there are other pictures that seem to lose their being, as pictures, holding instead the power of swaying the emotions in the same way as does music or poetry. Time and again I have tried to convey to others, by word of mouth as well as pen, some conception of these hidden pleasures that pictures can have, but with little success because the right pictures were not to hand. With the coming of the November issue, I found, on pages 427, 429, 430 and 431, reproductions of prints that seemed admirably suited to another attempt. These pictures received prizes at the California Liberty Fair, recently held at Los Angeles; and, mentioning my interest in them, I was told that reproductions of other prize-winning pictures would be placed at my disposal in order that

what I might write would have a wider scope; that "fancy might have a fairer field", I think the editor called it.

Taking those in the issue mentioned, "A Vale in Arcady", to the unimaginative is perhaps no more than a bunch of trees on a side hill, trees that, for some unaccountable reason seem to be bunched just right. But let us look a little further: Isn't there the same feeling expressed in this picture that we might expect to find in a real poem, an intangible something that carries one's thoughts away from or beyond the fact that the picture is a pleasing arrangement of light and shade. Your subconscious self sees in it a familiar look, you have seen this very place, you recall the pleasure it first gave you, forgotten memories are revived, you cease to see a print, but instead, a something that gives forth pleasure in a revival of what you have at some previous time so thoroughly enjoyed. You feel a something that is neither the poetry of words or the rhythm and harmony of masses, but instead the "poetry of thought and feeling".

MARCH — By WILLIAM M. CLARK

"Storm Clouds"; while an arrangement that the designer would immediately designate as decorative, is worthy of consideration along a different path. Let us look beyond the decorative quality, allowing our imagination free reign, if only for the pleasure to be found in getting away from the old prosaic way of seeing with the eyes of our physical self, studying the picture with the eyes of our subconscious self instead. Let us forget that we have merely a grouping of eucalyptus against a sunset sky and revel in the harmony of long flowing gently tapering forms, losing themselves in heavier masses of deeper tone; and then recall that most pleasing harmony of gentle notes rising, falling, floating away into something that isn't color, isn't sound, but just the sensation that one gets, at times, from the gentler tones of a violin. The semblance is more than an imaginary one, more than a mere coincident.

While an example of neither poetry or music, the picture, "Waiting for Summer" is an excellent example of the left-handed in art. Hold this picture before a mirror and study it with the lines reversed, and you will find the improve

ment so great that you cannot help feeling that it must have been reversed in the process of reproduction. The reason for this startling change in the picture lies in the fact that, as our eyes are in the habit of traveling from left to right and from top to bottom, through the training they get on the printed page, the most pleasing pictures have their lines flowing in the same general direction. In this picture, as reproduced, the eye-travel is across the main lines of the composition; while, with its reversed image in the mirror, the eye travels along the lines, an easier and consequently more pleasing procedure. No matter how near technically perfect this print may be, it could not be made one that you would grow to like, even if improved by the reversement, because it too exactly represents a definite place, as well as things within itself that have no emotional value except, perhaps, to the owners of the boats, those whose pleasure is one of ownership, rather than that of a seeker after the beautiful.

THE COLLIER By FRANCIS O. LIBBY

"The Wave" is another picture that appeals to the few. To the artist because of the fortunate balance of light against dark, and to the photographer, because he himself has always pressed the button a fatal fraction of a section too soon or too late to get just what Mr. Taylor so luckily caught. To those who have seen and admired the beautiful rhythmatic curling of waves, this print will give pleasure; but what of the inland resident who has never had the enjoyment? Doesn't it seem to represent a quite realistic news picture of an exploding depth bomb with the tell-tale oily smear so often mentioned in the dispatches?

I wonder if the same thought could have occurred to you as has so many times occurred to me when looking over the first and second prize pictures of an exhibition; a desire to know the reason for the judges' selections and a wish that I could visualize the emotions of the photographers who, entering certain

prints, and then seeing only reproductions of the prize-winning pictures, wondered: "Well, if these received the prizes, what could the others have been."

I have tried very hard to find anything beautiful in "March", the winner of the second prize in the landscape class. Let us analyze it, looking for those things that make a picture live, and I believe we are breaking no rules in doing so; because, when a picture is awarded a prize and has been pronounced "thus-and-so", it becomes public property and must speak for itself in any company. First, does the subject, the handling, the composition, and the rest, convey the thought conveyed by the title? In other words, without the title would you have got the thought the artist meant to convey? You will agree with me, a picture whose charm lies principally in the title should not be entitled to a prize as a pictorial representation of thought. Cover up the title and we have the leavings of a forest fire any time during winter. Of aerial perspective or atmosphere there is none, the trees furthest from the camera are as black as those in the foreground. Try reversing this print and covering about one-half inch of the foreground, and you will find the composition improved. Had the title been, "A Sketch", which it is in effect, I most certainly would not have offered a criticism; because, as I may here add, I believe that in photography, as in painting and sculpture, we must recognize the three stages in pictorial representation. First, there is the sketch, that which records in the crudest way the essential details of a thought; then comes the study which takes into consideration the elements in detail, and sometimes dozens of both sketches and studies are required in the production of the last or the finished picture. And these first two should not be given titles other than "snow sketch" or "winter study", or something of the kind, reserving for the embodiment of all that is necessary to the presentation of the finished thought, the title that conveys the same idea.

ANTHONY ANDERSON BY EDWARD HENRY WESTON

"The Collier" is above the average; the handling of the masses to eliminate non-essential detail has been given considerable attention, with the exception of the unfortunate placing of the flat white spots against the black masses. They

add life, but cover them up or tone them down, particularly the jet of steam at the side, and notice the improvement. A few strokes with a soft pencil will do the trick, and this done, the attention is all on the point of loading or discharging where it properly belongs. A little more depth, but not detail, in the shadows and reflections would take away that hard, opaque look.

Mr. Anderson will please not feel that I am indulging in a personality when I commence and conclude my criticism of his portrait by remarking that his wife or sweetheart will not treasure that print as a work of art or cherish it as a good likeness of the handsome man he is.

THE CHINESE FLUTE By MARGARETH MATHER

"The Chinese Flute" certainly has a touch of the Oriental, but has a flute not always typified music; and wherein, may I ask, does this print suggest anything more than an Oriental boy with a stick. Because a pictorial representation is strange and bold in conception, and could have a great deal said about it from the Oriental viewpoint, nothing constructive would be achieved by going into that side of the subject.

BETALLO RUBINO
By LOUIS FLECKENSTEIN

Why the picture, "Anthony Anderson", should get first prize and "Betallo Rubino" third prize in the portrait class, I cannot understand, unless something entirely outside the merits of the prints influenced the judges, and I believe any portrait painter will agree with me. In the first, only a "snapshot" or rough sketch has been achieved, while "Betallo Rubino" has the unmistakable touch of the pho-

tographer working for something far more worthy and lasting than freaky effects. Any photographer can learn much by giving this head a little study. First observe how well the simple lighting and graceful lines so thoroughly harmonize with and so fully express the character sought to be portrayed. As a composition, little more could be desired; nothing added and nothing taken away to improve it. The thought, the character, that has been pictured, are as straightforward and clear-thinking as the tones are few and unconfused.

BY THE SHOP OF TONG WO LUNG By JOHN PAUL EDWARDS

With this reproduction before us, it might be well to call attention to the all-too-frequently made mistake that of blindly employing this lighting, composition, etc., with models whose character it does not in the least express. To my mind, the real art in portraiture lies largely in the artist's ability to analyze the model's character and then emphasize only those features that best express the dominant characteristic. The treatment must vary as does the character to be expressed, and the emphasis to be given. With "Betallo Rubino" everything may be expressed by the head and shoulders alone, while others may require the additional placement of hands, and still others demand that the bearing or carriage of the figure be shown in order to best express their character.

"By the Shop of Tong Wo Lung", while being an excellent example of aerial perspective, is not quite satisfying. For the benefit of any who might not understand the meaning of the term, aerial perspective, let me say that it is the feeling of distance given by the appearance of there being more air or atmosphere between the observer and the distant buildings than between he and the lamp post. Other than this and the fact that the useless detail generally included in a study of this kind has been left out, little can be said in a general way. Let us, however, look at the matter from another angle, because this

particular print is so representative of so many thousands just like it, possibly of one or two in your own collection. Although the title, "By the Shop of Tong Wo Lung" calls up a mental picture of Tong Wo Lung's place of business, wouldn't you have felt better satisfied and consequently better pleased with this print if it had shown you more of the shop, yet with the same drowsy air the camera has so well portrayed? When the average mind is called upon, through being shown a misty street with such a small amount of characteristic Oriental architecture in evidence, to picture the more intimate details ordinarily associated with a shop or shopping scene, it refuses to bridge the gap. The observer will not take the trouble but passes on to become interested in neighboring prints that do not require so much mental energy in their appreciation. In fact, I think you will agree with me when I say that: nothing gives one quite the same pleasure as those things given in exactly the way you want or expect them to be given.

A MOMENT FOR THOUGHT By ALBERT KELLY

"A Moment for Thought" is an excellent title and conveys exactly the impression one gets from the action of the figures, and I am sure that it would, or should, have been awarded first prize had it been cut in half and only the upper portion entered. Just cover up the lower half of this print, making the new base of the picture about a quarter of an inch below the table top. This gives a solid foundation, eliminates all the confusing detail of legs and the like, and concentrates the attention on the problem where it belongs. This picture, with the change suggested, comes as near embodying all the good points of a really good picture as anything I have seen for some time, and I believe the artist would be well repaid for any additional time spent in developing this print along the lines suggested.

In no sense need these thoughts I have set down, detract from the pleasure you may have gotten from viewing these prints; but rather, I hope that these few comments may result in your getting more from the pictures you may see in the future, by suggesting a method of exploring the untrodden fields you may cross, perhaps without knowing just where to look for their elusive beauties.

Mezzotint Effects and Paper Negatives

By Edgar Felloes

An Illustrated Talk Delivered Before the California Camera Club

I am here to talk on the manipulation of negatives, sometimes called "faking". It should be our endeavor to accentuate, or to even add to, the composition of our most promising subjects; to increase the pleasure of others as well as our own. Never fail to show just why you were attracted by any particular subject you photograph.

After we have passed the elementary stage of "shooting" willing friends and unwilling enemies, we reach a point called—tired. Should interest survive, we begin to think of harnessing our hobby, and striving for a controlled as against the haphazard result. It means more work, of course, but as this work is our hobby, our pleasure should be the greater.

I wish to bring to your notice the photo-mezzotint style of printing, as I do not think the method is generally known, and I also wish to draw a comparison between it and the results of the usual "soft-focus" method. I have nothing to say against the soft-focus; that is, if the diffusion is not excessive. But I have seen soft-focus pictures that may be termed rabid. You are working in photography; do not flatter yourselves with the idea that, if your work is made to look unphotographic it necessarily approaches art: It does nothing of the sort! Let the work be honest. Be satisfied if people of good taste and educated judgment say of your effort, "It's really fine!" Is it not better to hear that, than to be asked "What is it?" You see, you are saved the embarrassed cough—the timid whispered answer—"Oh, that is art!"

Let me ask you; is it artistic to photograph a tree and have it look woolly? I have seen a pictured oak with every detail so suppressed that it looked a bulging thing,—like a captive toy balloon, impatient of the stick. Is it artistic to have a stone wall look as soft as a maiden's cheeks? Surely this kind of soft-focus work is wrong.

Do not destroy texture; if the object to be photographed is hard and rough, make it hard and rough. Do not destroy all detail; for you have only uninteresting mass to give in place of it. Notice particularly the shadows of this class of picture: they are monotonous. We are treated to several inches of paper without the slightest variation of tone, several inches of gloom. A little detail would make these shadows live; give them air; give them light.

Photographers have been told to light their shadows. The portrait photographer will do this with reflector or screen; some so place the screen as to throw the light directly into the shadow, against that side of a face, perhaps. Did that photographer do right? I should say not! He should, instead, reflect his

A STRAIGHT PRINT

MEZZOTINT EFFECT

light across the shadow. Then that shadow would live, it would have modeling, detail. The other way simply makes the shadow lighter, flatter.

I want those of you who feel the need of a little help, to occasionally buy a copy of "The Saturday Evening Post" when you see that the cover is illustrated by Leyendecker. The reason I mention Leyendecker is, he knows what he is about, and from his work you can get your lesson, and get it for five cents. Notice how this artist rounds his heads with the reflected light. I allude to the apparently accidental light on the extreme edge of the shadow. You instinctively feel there is more of the head or face "around the corner", as it were. Then, study the average photographic portrait work and you will realize why so many of the subjects have no backs to their heads. You may not get the point on the first lesson, but persevere and you will be rewarded.

How many are there who know how to light their shadows in a landscape when conditions make them heavy? Let me tell you that a black dog can do wonders, or a man in a dark coat may be very useful. Try and use something darker than the shadow, in the shadow; and that shadow cannot be heavy. If you cannot do this at the time of making your negative, print or dodge in something afterwards.

There are other ways of killing the feline than by choking it to death with oleomargerine. Let us suppose you have a mass of shadow, flat and uninteresting, in your foreground, and you have no black dog, do not despair! Perhaps there is a rock there, perhaps some tufts of grass, capitalize these, emphasize them and light will come into your shadow, by contrast. The general tone of your picture should determine if your shadow should be lighter or darker. Remember that a light object in your shadow makes it appear darker; whereas, a dark object will make your shadow appear lighter. The results are more art-

istic if we make our shadows appear darker by contrast, instead of by extra printing, the usual practice. The first method gives you light, the second is apt to give only black, more soot, more coal dust. In nature, shadows are never black.

Let me repeat, do not suppress all detail. I have tried to show you the importance of it in your shadows. The mezzotint effect has advantages. By it, one has the diffused and the detailed picture, both in one print. One's judgment determines what proportion of each effect is required in the finished work. The

A CONTACT PRINT MADE IN THE USUAL MANNER

process is one that Professor Burton suggested many years ago; but as I have never seen any examples of it, excepting my own, I concluded you might be interested, as I believe the method is a valuable one. At one time several of my exhibition pictures were made in this way; and, as I received awards for some of them, the process must not be entirely lacking in merit.

I now pass you some prints for your inspection and I will immediately proceed to describe the method of their production.

Our first step is to make a diffused or fuzzy print. We place the negative in the printing frame in the usual way. On top of that we place a plate of clear glass, then the sensitive paper, taking care to joggle all three down into close contact with, say, the lower left hand corner of the frame with the bottom or long edge snug against the nearest side. Then put the back in carefully so as not to shift their position. One can, if he wishes, hinge the paper to the top of the negative with two or three strips of lantern slide binding, but if that is

done it will be advisable to cut the glass about half an inch shorter than the negative in order that good register will be assured when the glass is removed for the second or contact printing. If this is not done, particularly when using heavy weight paper, the latter shifts its position somewhat when the glass is removed.

We will now suppose everything ready and the frame closed. If the paper is of the printing-out kind, as this is, place it in the shade to print. If you are

MEZZOTINT EFFECT SECURED AS DESCRIBED

in a hurry,—and I was in a real hurry to get out these proofs I passed around, you may stand in the sun and print, wiggling the frame all the time so that the light strikes it at various angles, otherwise you will not get the effect desired. This last procedure will be required in the case of a developing paper, a weak artificial light being used so as to prolong the exposure time. How long shall we print? That is the point left to the individual judgment. The proofs you saw were printed to a little more than half the total strength desired, with the glass in position between the paper and the negative. This was easily determined, as the printing was visible. If we print darker, say two-thirds, fuzzyness is naturally increased, as we will then have only one-third of the total time left for the final printing. Having obtained our fuzzy print, we remove the clear glass and finish the printing with the paper in contact with the negative. If your paper is hinged to the negative, it drops into place beautifully. If not, a little care is necessary to see that it and the negative are again jogged into the same corner

and against the same long side. I might mention I did not hinge any of the prints you have in your hands. Perhaps some of you may have noticed a false register in one of them. My hurry explains my neglect,—I took a chance.

If there should be anyone among you who wishes soft-focus effect and has not a soft-focus lens, I would say, "don't be down-hearted", use a sheet of glass or two or three thicknesses of clear celluloid for separation of negative and paper, and you will be right in line. But do not overdo it!

I have had no experience with the mezzotint effect on developing paper, but I believe anyone could get the desired results by increasing the distance from the printing light and by wiggling the frame as I did in the sun print. You can easily work this out by a little experimenting. It is not my purpose to speak of finishing the prints, I only wished to show you how to get the result. This finishing is the same as the manufacturers advocate.

The second subject of my talk is paper negatives. Do not pause for the grand idea, nor wait for the golden opportunity. Do not count on a trip miles away from home. It is far better to employ yourself making paper negatives from the choice pictures you already have. I do not necessarily mean selected choice pictures, but the choice pictures you have and now know little about. Search them out; and here is a pleasant evening's work for some of you. Get a batch of your negatives together; a whole season's work, snapshots, everything. Place these handily, put a sheet of white paper, or prop up a small mirror, on the table in front of you. Procure some pieces of black paper about three or four inches square; and, with a sharp knife, cut an opening about as large as a postage stamp, in each, varying the proportions so that one or two will be oblong or panel shaped. Take a negative, and by the reflected light from mirror or paper, go all over it with one of the pieces of black paper on a still hunt for the choice bit it may contain. Slide the opening in the black paper over the negative in all directions; do it with care, take time and thought and you will often see the finest little picture slip into the opening of the little black frame. Then try various sizes, both larger and smaller, till satisfied with the finding. It does not necessarily follow that this pictorial fragment is all that the negative contains; but it is a fact that these little pictures will often possess more artistic merit than the whole negative. The seeing of a picture is a gift not possessed by all; but, the results of perseverance has time and again been accepted as proof of a real gift.

The advantage of a paper negative is two-fold; it lends itself admirably to dodging, and it is economical. The method I recommend for working up these little fragment pictures is as follows: Cover the whole negative with a mask in which there is a cutout showing the picture; place the negative in the enlarging camera and make a positive or bromide enlargement the full size of the final result desired. I find a picture about one by one and one-quarter inch will readily enlarge to eight by ten inches. Having the positive made, place it on a retouching easel or some like support and work it up with a lead pencil or brush, working on both sides, the large masses on the back of the print, the small touches on its face. It is impossible for me to tell you just what to do, as that depends on the subject. But we often see the leaves of trees a mass of white

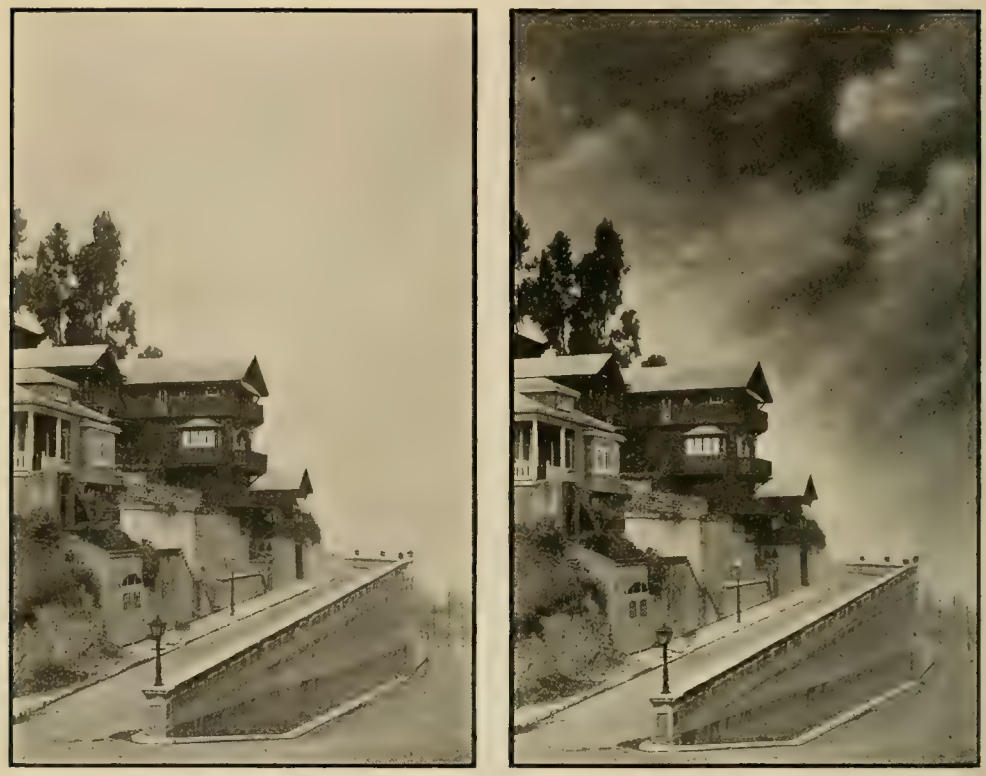
spots,—tone these down. In fact, it is a good plan to take every appearance of spottiness out of the picture. If your shadows are too dark in the distance they can often be made to appear lighter by toning down the lights, by reducing the contrast. Work on the shadows themselves should be left for the negative print. The lights are worked on the positive print.

When the positive appears satisfactory to you, make a print from it, by contact, on another piece of thin bromide paper. This print is the paper negative on which you can brighten up any high-lights or reduce any of the shadows. A paper stump with a little black crayon, a black lead pencil and the point of the finger, are all that is required. Do most of the work on the back of this paper negative, using an eraser where too much shading has been done or to pick out sharp touches of white if necessary. One can also put in clouds, if needed, and the negative sky is not too black. Extra exposure on the sky, when making the positive, will prevent a too black sky in this final negative. You are not likely to be troubled seriously with the grain of the emulsion if your original negative was fully timed. If you avail yourself of the mezzotint method, you can obliterate all this grain and remove the necessity of much of the hand work as well. Do not try to grease or otherwise make your prints translucent; it is not necessary. The printing will take a little longer, that is all; while, on the other hand, an improperly greased paper negative leads to trouble.

It is good practice to make an occasional proof on printing-out paper during the progress of the work on the final negative, as a guide to further changes and modifications. This is nothing more than an etcher has to do when he pulls trial proofs from his plate in order to judge his progress. Those of you who have never tried this building up and improving of a picture by working on first a positive and then a negative, have no idea of how engrossing it becomes. What I have said of fragments applies, of course, equally to whole negatives.

While the addition of clouds falls logically within the scope of my talk, clouds play such an important part in landscapes that I wish to deal with them separately. How often have we been advised to trim down our skies to balance our picture. This practice is, without doubt, both wasteful of material and a rather lazy procedure. It is, in many cases, a much better plan to fill up the sky space with suitable clouds, not the kind that claim all the attention, but the kind that, while subordinate, help the composition. I am not speaking of combination printing, that means considerable work and a nicety of manipulation, to say nothing of keeping on hand a large assortment of cloud negatives that are very liable to get "chestnutty". In the majority of cases, all that is necessary, is that suitable cloud forms be suggested. Photographers, when printing clouds, invariably overdo it; the temptation to show off a good cloud negative is almost irresistible.

If your landscape is interesting, make your clouds subservient to it; if not interesting, make your sky and clouds the feature. If you pause a moment and think, you will realize that doing so is also doing a natural thing. When you admire a landscape, you gaze at it and "feel" the sky. If, on the other hand, the sky claims all your attention, you only "feel" the landscape. Make your pictures that way. Do not let the spectator leave your picture with a doubt. Work for



ONE OF THE TWO PAIRS OF PRINTS HANDED AROUND

a climax and send home your message. Don't have two climaxes; a fine landscape, a fine sky,—it leads to confusion.

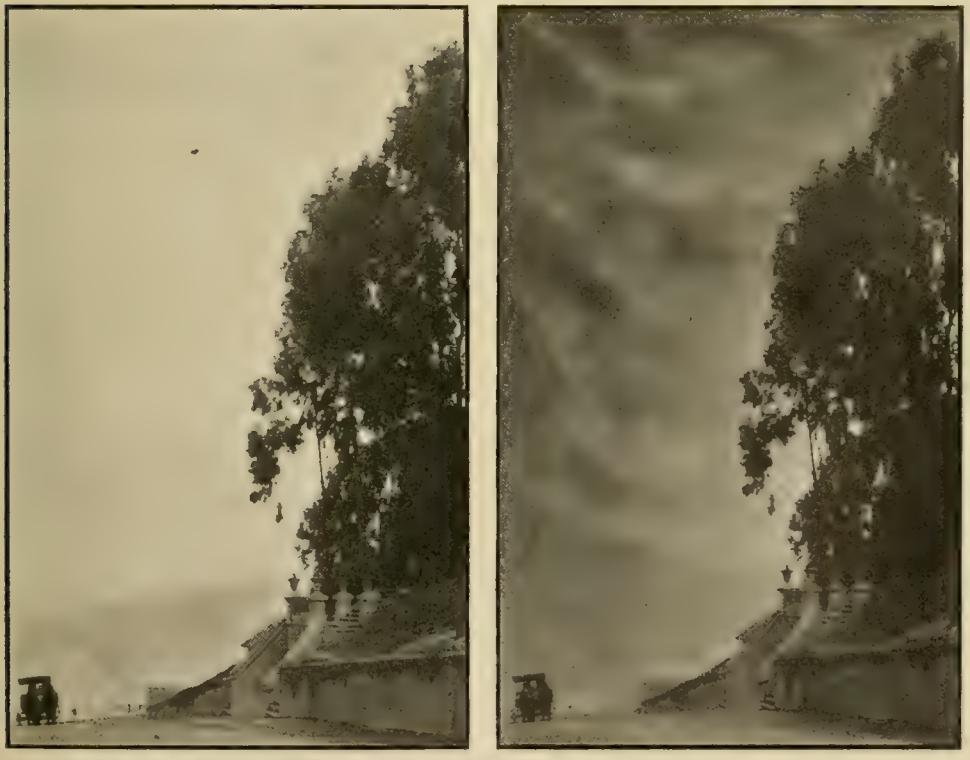
Few photographers really appreciate the value of clouds in their picture. If they show clouds they think they have done enough. Such, however, is not the case. The clouds must be suitable, that is, they must run in such a way as to help the lines of the landscape. That is why I claim the advantage of applied clouds over the natural ones. It rarely happens that the clouds are right at the time of photographing the landscape. With the clouds right, you carry the eye of the spectator where you will. The eye likes to travel, and it will always do so if you give it a chance. I will hand around a few prints having worked-in clouds as examples.

When making clouds, or selecting clouds for printing, remember this: do not have your clouds too large, as they will surely dwarf your landscape; besides, large clouds only give the sense of inches in your sky, while small clouds will suggest miles. Remember the infinite, strive hard for the sense of space. Dore, the painter, had a positive genius for space: Perhaps you remember how the angels in his skies suggest the countless, and there also is the infinite distance.

The clouds in these two prints I am handing around, paired with their companion or cloudless originals, were produced very quickly from another form of paper negatives. I took two sheets of clear glass, gave one side of each a narrow border of paste and then pressed them both down on sheets of damp tissue paper. Set aside to dry, I soon had the two pieces of glass neatly covered

on one side with a sheet of tissue paper as tight and smooth as the head of a drum. Holding each of these up to the light in contact with their respective negatives, I lightly sketched in the desired cloud formations and also an outline of the landscape parts. It was then but a matter of only a few minutes' work to apply opaque inside the landscape outline and work in the cloud forms with stump and crayon sauce on the tissue paper. These two prepared glasses were then used in printing the clouds first, the tissue paper coated side being placed outward with the paper in its usual position. Exposure was made, the cloud negatives removed and a sheet of clear glass and the film negatives of the landscapes put in their place and both again exposed. As the sky portions of the two film negatives were quite dense, no protection of the already printed sky portions of the print was necessary. These two prints are not offered as examples of either artistic photography or faultless technique. The negatives I went out and made near my home Sunday morning and the prints were hurriedly made during a spare hour the next following evening. They will, however, show the advantage of suitable clouds, both as an aid to composition and as a means of avoiding the cramped and confined effect too often resulting from trimming away a too empty sky.

Some people seem to have difficulty in drawing, and yet, with their fingers they can model things quite well. To such I would offer a suggestion that will help them in cloud building. Take a suitable board, a drawing board or even a pastry board, and cover it with dark cloth tightly drawn and tacked at the



THE OTHER PAIR OF PRINTS HANDED AROUND

back. That is your sky. Now take some absorbent cotten and place tufts of it on this cloth sky. The larger tufts can be pinned on, the smaller ones representing the fleecy clouds, will stick of themselves. Having your cotton clouds arranged to your satisfaction, set up your board where it can be photographed in the proper light, lighting it at the side for daylight effects and from the bottom for sunsets. Do not focus too sharply and give a short exposure, that is, slightly under-expose. You can get good cloud effects this way and you can make the general line of your clouds run right in the direction; but, you must study clouds in nature or you will fail even in this. You see, you may get away from the drawing but you cannot get away from the study; you must study clouds.

And a final word of warning, never take the dear public into your confidence. Do not tell your friends just how you get your effects, for if you do, your work will be discounted, no matter how good it may be. And if you are so bold as to use these cotton clouds, keep mum or the public will ever see absorbent cotton in your skies and perhaps the red cross too. In other words: "Never let the feline out of the burlap".

"All the genius I have lies in this: When I have a subject in mind I study it profoundly. Day and night it is before me. I explore it in all its bearings. My mind becomes pervaded with it. Then the effort which I make, people are pleased to call the fruit of genius. It is the fruit of labor and thought."—ALEXANDER HAMILTON.

My first and last secret of Art is to get a thorough intelligence of the fact to be painted, represented, or, in whatever way, set forth—the fact deep as Hades, high as Heaven, and written so, as to the visual face of it on this poor earth.—CARLYLE.

Our work must be done honorably and thoroughly, because we are now men; whether we ever expect to be angels, or ever were slugs, being practically no matter. We are now human creatures, and must, at our peril, do human, that is to say, affectionate, honest and earnest work.—RUSKIN.

Exposure In Enlarging

By F. Morris Steadman

With Illustrations by the Author

From time to time I have been asked, in letters forwarded me by the Editor, if I could not supply a method of determining the correct exposure in making bromide enlargements. One of these inquirers calls attention to the fact that he has seen some application of a certain exposure meter recommended for the purpose. Another and more recent correspondent speaks of the possibility of using a lighted standard candle, so mounted as to slide backward and forward on a graduated scale held in the path of the light forming the deepest shadow in the print. This is to be adjusted at the distance at which its own image just becomes submerged, and the correct exposure then calculated therefrom by reference to the scale. This last is, in fact, a sort of modification of the old "grease spot" method of determining the value of a given light as compared with that of a "standard" candle.

This subject, the determination of exposure in enlarging, is one that I have given considerable thought and study, particularly as I do no small amount of enlarging in the regular course of my own work; but, in my opinion, there is but one method of determining the correct exposure in bromide enlarging, that is at all reliable, and that is by exposing and developing such an enlargement from the same negative, on the same paper with the same developer. As a matter of economy, a small piece of paper is used for this "test", but it must be a strip from a sheet of the same emulsion number as the paper to be used, and it must be large enough to include a portion of the high-light area and at least some of the half-tones, preferably some of the shadow area as well. The reason for this care becomes apparent when we consider how much more exacting are the requirements in the way of correct exposure than is the case in the production of a negative. Not only is the emulsion made up of an extremely fine deposit, but it is coated in a much thinner film, making the production of a satisfactory image a more delicate matter than the building up of opacity in a negative plate or film. Furthermore, while quite a variation from the normal in the latter can be corrected by a proper selection of a harder or softer printing paper, the image of the bromide enlargement must itself be of the proper quality. In addition, the color of the deposit in a negative is of minor importance, as compared to a bromide print. It must also be remembered that this same delicacy of formation makes the film of the bromide paper much more sensitive to variations in the temperature, strength and general condition of the developer itself.

And again, with a plate or film in making an average exposure, one has a wide latitude in which to work by reason of the variation in illumination of

individual areas; but with the bromide paper, one has only the range from clear glass to high-light deposit of the negative, and must therefore expose correctly. In other words, an average landscape, for example, has a range extending from the sky, itself a source of illumination, to shadows requiring perhaps several hundred times as much exposure, so that at varying speeds between these two extremes, an exposure will still give satisfactory results. In fact, for the plate or film, the exacting enlarging conditions are only approached when making

REPRODUCED FROM TWO OF THE AUTHOR'S ENLARGEMENTS

copies or perhaps in the case of distant or bird's-eye views. And we all know how difficult it is to correctly time the exposure for these subjects, so as to assure the best possible negatives.

There is still another and a more scientific reason why dependance cannot be placed upon any pre-exposure test of the strength of the light forming the enlarged image, as a guide to the correct exposure for the print; except, perhaps, in the case of a perfect negative from an ideal subject, one having a full range of tones, from which it is desired to make a like normal print. And by a perfect negative we mean one having just the right density for bromide enlarging with the particular illuminant being used. Assuming that a test of the strength of the brightest light going to make up a part of the enlarged image, be made. Making such a test would be measuring the intensity of the shadows of the finished enlargement; and, the aim would be to secure a satisfactory shadow tone in the print. Quite obviously the degree of contrast inherent in the negative would introduce a special factor that would upset the value

of the test should that degree of contrast vary in the least from the standard on which the system was based. With a very flat negative, for example, the test requirements for a good black in the shadows would indicate an exposure that would make the whole print go entirely too dark. We all know that, in an enlargement from a flat negative, the shadows cannot be made as dark, or the lights as light, as is possible with a negative of good contrast.

And devising a system based on the strength of the weakest light, that suit-

SOME OF THE AUTHOR'S EVERYDAY HOME PORTRAIT WORK

able for a high-light tone in a well graduated print, the same difficulties would present. The indicated exposure would, with the same negative, be insufficient for the shadows, which, in such a case, demand that the high-lights be somewhat over-exposed for the best general result. With any sort of a light-testing plan, based on a good normal negative as it would have to be, there would be required a second test of some kind in order to determine just how far each negative varied from the normal or standard degree of gradation and density. And even if no further factors had to be considered, the calculation of the exposure from the result of these two tests would be rather complicated, to say the least, except under the most ideal conditions of a perfect negative as suggested above.

After all, how long does it take to make a simple test with a small piece of the paper to be used? Exposures for enlarging are comparatively short, particularly if one uses as large a stop as possible in order to secure that desirable softness that characterizes the better class of work. The strip exposed for a

test needs only to be immersed in the graduate containing the developer, preferably by grasping one end with a wooden clip so as to avoid wetting the fingers. One can, with a very little practice, and by using a developer that is always the same, judge very closely just how much more or less exposure is required should the test strip be given too long or too short an exposure, the element of time required in developing the test strip being taken into consideration. Owing to the more delicate structure of the film, as before pointed out, there is not the same opportunity to compensate for variations in exposure, by longer or shorter development, that there is in the case of a plate or film.

As we all know, a properly exposed plate or film may be easily over-developed, but not so an enlargement on bromide paper. In the case of the plate, the heavier emulsion permits of an undue building up of the density by prolonged development. With the bromide paper, a properly exposed print will come up to the proper density and then practically cease to build up. By using a developer that is always of uniform strength, freshness and temperature, one quickly learns the exact time required for proper development of a correctly exposed print. And this time, once known, gives an infallible guide for the determination of the degree of departure from correct exposure that the test strip may have had.

In my opinion, anyone who undertakes to devise a method of timing the exposure in bromide enlarging, will, even after his plan has been worked out, use up more good, valuable time, in applying it than would be required to secure absolute certainty by means of the test strip method of determination. Any such testing of light fails to take into consideration the variation in the speed of different papers, and of course any slight variation between different emulsions of the same brand. To use such a method one would have to know the relative exposure required for different papers; and, when it is realized that the relationship of these exposures change with the form of the illuminant, and to some degree with its strength as well, the advisability of using the more direct test-strip plan becomes apparent. With this last the test is made under exactly the conditions that maintain in the case of the enlargement itself, therefore assuring the fullest attainable value, it would seem.

Flashlight Portraits

By W. G. Earle

Illustrations by Dambly, Southworth and Natusch

Last October I took the opportunity of criticising an article on flashlight work that appeared in these pages, and this time I am prompted to enter a protest against statements made in an article under the above title, copied by one of our American photographic magazines from the pages of *Photography,* published in London. Our English cousins are either far behind our own workers in the matter of flashlight apparatus or else the particular one airing his views in the article in question is decidedly lacking in information on the subject. The editor of the American magazine that reproduced the article, evidently did so because of the good points which it contained, but he should have called attention to the misinformation, if it was not convenient to leave out such portions.

The writer of the article in question very properly calls attention to the fact that unsatisfactory results, when experienced, result from a failure to employ the proper methods of using the flash as an illuminant, declaring that: "it cannot be laid down too emphatically that they are the results, not of the use but of the misuse of the flash;" adding, "the flash is capable of producing results that cannot be distinguished as flashlights". This last I would like to qualify by adding: except by their superiority, and further explaining that in many cases the flash enabled one to secure results that would be impossible under the usual skylight conditions.

I must, however, dissent most emphatically from the statement that: "the quality of the results obtained does not depend upon the choice and use of magnesium powder in a blow lamp, or the fast flash compounds"; the idea intended being that there is no choice between the two as far as results are concerned. My long years of experience with all forms of flashlight material and apparatus convinces me that it is practically impossible to secure satisfactory results, in portraiture, with magnesium powder blown through a flame, as such powder must be used. The exposure must, of necessity, be of one or two seconds' duration; which, while not unduly long under ordinary conditions, is fatal in the case of a flash, for the simple reason that the sudden burst of strong light is almost certain to cause either a decided squint or a closing of the eyes that is recorded on the plate before the flash is discontinued. With a flash produced by a fast flash compound, one lasting only one-thirtieth to one-sixtieth of a second, no such difficulty arises.

Anyone who may doubt the correctness of my contention in this matter has only to give the method a trial or two to be convinced. He will find that not only are the eyes closed or squinted, but in many cases there is accompanying movement of the entire head that is involuntary and uncontrollable, most particu-

larly so when the flash is within the field of the sitter's eyes. Even with the fast flash compounds, the momentary closing of the eyes, or winking, occurs; but, as the duration of the flash is only one-thirtieth of a second, the light has done its work and vanished before the damage is done, the wink coming after the flash, not with it. The truth of the matter is, these things are all so well understood in this country that, to the best of my knowledge and belief, none of our photographers use magnesium powder for portrait work. I really cannot conceive of any reason why such a powder should be used for portrait work in any country where a reliable flash compound, having a speed of one-thirtieth of a second, or higher, is procurable.

A FLASHLIGHT BY DAMBLY, SHREVEPORT, LOUISIANA

This writer quite properly points out that, in general, the light should fall upon the subject at an angle of forty-five degrees, which means that the flash should be as far above the head as it is distant horizontally, or as nearly so as practicable, but I cannot agree that it should be "six feet distant" for a bust portrait. Much softer and more harmonious blending of the lights and shades will be secured if a diffusing screen be placed three feet from the subject and the flash fired a foot or so back thereof. Quite true, the screen may cut off a small part of the light; but, the flash being nearer, less, rather than more, powder is actually required for the better quality of illumination.

Further along the article complains that: "A serious difficulty in all flash-light work is that the lighting effect cannot be properly studied beforehand".

This simply shows that the writer is unfamiliar with such apparatus as the Victor Studio Flash Cabinet that for years has been in use in many studios throughout the United States. In these the auxiliary electric lights enable the operator to see and modify his lighting effects at will and with equal facility to skylight conditions. The lighting effect secured with the flash is exactly the same as that seen by the eye as a result of the illumination from the electric lights, while the former gives the advantage of an instantaneous exposure assuring fully timed negatives without any danger of blur or movement. The operator also secures a uniformity of timing, which it is impossible to get with daylight, the latter fluctuating with every hour of the day and every day of the

BY SOUTHWORTH, UNION CITY, TENNESEE

BY NATUSCH, DE KALB, ILLINOIS

year. A good flash powder never varies in the actinic strength of the light produced by a specific quantity, while the actinic quality of daylight is often misjudged by the most experienced operators. He never loses an exposure through movement of his subject or loss of expression, even with children or elderly persons who would be most trying subjects under the best skylight, and with the most rapid lens. Equipment of this kind does away with the smoke annoyance, completely; as does also similar portable equipments designed for home portraiture. As I said before, it hardly seems possible that one would consider the use of the slow magnesium flash portraiture, much less suggest its use for that purpose, in an article intended to be informative on the subject of "Flashlight Portraits".

When has a man found the treasure? When he has found his soul. * * * When he is filled with joy and peace.—*"The Foot of the Rainbow."*

Photography Used In Advertising

By B. F. Loomis

With an Illustration by the Author

F. A. Cody, of the Anderson Water Company, having gotten up an advertising envelope for another town a few years ago, thought that it would be a good idea to advertise the resources of our section on the envelopes used by his firm, by placing a photograph on the face of these envelopes and a printed description on the back. The idea was a new one to me and of course I was at once interested in seeing it worked out.

Just what to use for the picture, whether a composite view made by grouping several pictures together, or a single photograph, was a hard matter to determine. None of the available local views seemed to be suitable for use alone, and so we decided to make something new, something that would combine a typical view of the district with an indication of the activities of this section.

To the south of town there is an elevation that commands an excellent view of the country, with the large aqueduct that carries the water of the Anderson-Cottonwood Irrigation District in the immediate foreground. A good portion of the town shows in the middle distance with old Mount Shasta in the far distance, some hundred miles away; the whole including a large portion of the wide expanse of valley being put under irrigation. While the view, as such, lacks merit as a pictorial composition, it is interesting, characteristic of the section, and best of all, shows as the main feature the aqueduct that is so typical of the business that is to be advertised along with the section it so abundantly serves.

The picture herewith was made for the purpose and promises to fill all of the requirements. A block will be made from the original print, and made of just such a size that it will just cover the face of the regular business-size envelope. The sky portion leaves just the right kind of a space for the return card in one corner, the stamp in the other, and later the post-mark and cancellation stamp of the post office between. The lower left-hand corner is now fairly unobstructed and in the block may be lightened still further in order that the desired name and address may be written in without being hard to read. One can see that with all these additions the subject matter of the picture will not be defaced or its advertising value decreased, something hardly possible with the general run of views and particularly with subjects characterized by their perfection of composition. The truth of the matter is, this picture, when printed, stamped and addressed, as it will be on an envelope going forward, really has more merit as a composition than in its original form.

As Mount Shasta, at this distance, is practically an impossibility to the ordinary kodaker, the reader may be interested in knowing just how the picture

THE PHOTOGRAPH USED FOR THE ENVELOPE FACE

was made. I have given this long-range work considerable study and consequently went about photographing the view with every confidence of getting just what I wanted. The lens used was sixteen and one-half inches focal length, stopped down to f-32, with a Bausch & Lomb five-times screen behind it and a Goerz Medium in front. Not having any Wratten & Wainwright Panchromatic plates, which I like best for this work, because they are backed, I used the next best thing I know of, the Seed Panchromatic, giving an exposure of nine seconds, at eleven o'clock, developing it in an edinol-hydro developer, after first developing another plate therein. The resultant negative was rather on the hard side and was therefore printed on Professional Cyko Plat. With the Wratten & Wainwright Panchromatic, which I prefer for this long range work, the resultant negative could have been printed on practically any kind of paper that one might wish to use. There is absolutely no retouching on the negative from which the print was made and no dodging was indulged in in making the print. Two or three dark spots in the lower right hand corner have been touched out with light water color, nothing more.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

A CONVENIENT FINDER: My view outfit is a 5x7 plate camera fitted with a three-focus Turner Reich Anastigmat lens. To make a finder I took three pieces of cardboard about the size of an ordinary post card, cutting an opening in the center of two of them, a little less than two by two and three-quarters

inches and in the third making the opening just that size. Then I cut a piece of thin blue glass to just fit the larger opening, put it in position and glued one of the other two masks on either side, binding the whole with some black cloth to make a neat job and prevent wear. To this framed piece of blue glass I attached a string and in the latter tied knots to indicate the three points where, when the knot was held against the cheek just below the eye, the view seen through the blue glass would correspond with that thrown upon the ground-glass of the camera with the lens arranged for one of its focal lengths. This simple device, while an old one that has been often described before, is one that I have never seen used, despite its obvious advantages. It not only serves to effectively shut off what the camera will not take in of the view, thus making selection of the subject matter less difficult, but it indicates the focal length best suited and shows the view as it will appear in monochrome in the print, owing to the blue of the glass through which the scene is examined.—E. D. C., Vermont.

SELLING ENLARGEMENTS: A few years ago the youngsters at the house were given one of the opaque projectors, the kind that throw a fairly good enlarged image of such things as post cards and the like upon a small screen. As with most such things, interest died out and I found no objection to my taking it down to the studio. Here it was set up behind a partition in such a way that the simple pulling down of a shade gave me an opportunity of showing the customer, using one of his own pictures, just how it would look enlarged to a certain size. The device has helped me to sell quite a large number of enlargements, but best of all, it enables me to definitely settle the matter of size, a question that so often comes up when an enlargement is being discussed.—T. G. B., New York.

A GREY VIGNETTE: Some time ago a customer came to me with a portrait that vignetted off into a neutral grey instead of the usual white or the occasional black of the so-called Egyptian vignette made in the camera. She wanted something of the same kind and this set me to thinking, in fact, experimenting, as the sitting was to be made later. The plan finally adopted was to coat a sheet of glass with some matt varnish to which had been added just a tinge of yellow, scrape away a clear space, with a deeply notched edging, in the center, fix this as the bottom of a deep mount box of the right size, and then fasten this glass-bottomed cardboard box to my ordinary vignetter support, so that it stood upright with the lens looking into the top or mouth of the box. A grey background behind the sitter harmonizes better than a white or too dark one. The results are very good, much better than with the white vignette, which seems to dull the high-lights of the portrait, and the grey is not so funereal as the black vignette.—W. E. R., Tennessee.

SOFT FOCUS PORTRAITS: Wanting to try my hand at soft focus portraiture and not caring to invest in a special lens, I tried the effect of using an old portrait lens with the back combination removed. The results were surprisingly good. The longer focus gave good drawing and the softened effect is one that is very pleasing. The slight disadvantage of longer exposure really does not matter greatly, for one does not, as a rule, use soft focus effects for children or very elderly sitters.—A. S. D., Florida.

CAMERA CRAFT
A PHOTOGRAPHIC MONTHLY

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Our Frontispiece This Month

This picture is a selection from a most varied and interesting exhibition that graced the walls of the California Camera Club during recent weeks, the work of W. H. Rabe, an old and honored member of the Club and one of its best known pictorial workers, who passed away early in January. As we said in our notice of his death last month: "With him, the common, every-day subject required but an appreciation of its artistic aspect and the photographic skill to catch and hold that particular aspect"; and we believe this statement is well borne out by the picture used as our frontispiece this month. It is perhaps not one of Mr. Rabe's best, neither is it greatly different from his other or more often exhibited productions, but it should prove a valuable lesson to those workers who may imagine this his success as a pictorialist was in any measure due to a wider field in the matter of subjects. True, Mr. Rabe had, as a resident of one of our bay cities, more varied opportunities for exercising his keen appreciation of the pictorial in architecture, landscape, marine and other classes of subjects, than many workers, but the fact remains that the same opportunities were available to hosts of others as well. But the most interesting fact is, however, that it was not to these opportunities that we are indebted for the charming pictures he produced, as exemplified in our frontispiece this month, and in a large number of others that we could also show, but to his appreciation of the pictorial value of the simple material about us at all times.

Sixth Pittsburgh Salon

Early last month Mr. Reiter advised that the prospects were very flattering for an exceptionally fine exhibit, many packages having arrived at that early date; but he wrote mainly to announce that the Committee of Selection, in which our readers are no doubt interested, will be Dr. D. J. Ruzicka of New York City, John Paul Edwards of Sacramento, and Samuel A. Martin of Pittsburgh. This is perhaps the first time that one of our Western workers has been so honored and Mr. Reiter writes that they are very pleased to have Mr. Edwards on the jury, not only for the more obvious reasons but to the end that "East shall meet West" more intimately than is the case when the only point of contact is the exhibiting of individual work at the same salons. Our Western workers will be pleased, we know, to learn that one of their number will enjoy the distinction that Mr. Edwards is so capable of upholding with credit to both them and himself.

Are Photographic Magazines Profitable?

Quite naturally our own modesty forbids our publishing a tabulation of the enormous profits we derive from the publication of CAMERA CRAFT, and our esteemed contemporaries seem to be blessed with the same commendable disinclination to excite the envy of their fellow man. But, if the reader will

pardon us, for the moment, for calling the *Photographers' Association News*, a photographic magazine, a survey of the association's published audit for the year just closed may interest some of those who have a curiosity as to the profits derived from such a publication. If we divide the association's receipts for dues by the price of a yearly membership, two dollars and twenty-five cents, we find that the *News* has a circulation of two thousand three hundred and twenty-one copies. Crediting fifty cents of each membership fee as a *News* subscription, which I believe the membership application blank explains is done, the total subscription income, plus seventeen forty that is credited directly to *News* subscriptions in the report, we have a subscription income a little under twelve hundred dollars for the year. Adding to this the little less than twenty-nine hundred dollars advertising income, we have a sum from which, after deducting the cost of the *News* for the year, would leave a balance that permits the editor-manager to draw the munificent salary of fifteen dollars per week, with an allowance of ten dollars for office rent, stationery, postage and other incidental expenses, before the publication showed a deficit. Do not make any mistake and assume that this desirable position of editor-manager is a vacancy to be applied for; that is not the idea we wish to convey. We are simply placing before the curious the only figures we have available covering the financial side of the photographic publishing business, knowing that there is considerable interest therein.

A Valued Gift

The California Camera Club of San Francisco is being made the recipient of the medals and awards of the late W. H. Rabe, these to be placed on display in the rooms of the Club as a stimulus to other members to work along artistic lines. Mr. Rabe's library and a large collection of his pictures will also be kept at the club rooms. As a director and as chairman of the Print Committee, Mr. Rabe did much to foster, among the members, a higher appreciation of the best in photographic art.

Miss Dahl With R. J. Waters & Company

Miss Olga Dahl, for a number of years in charge of the photographic department of Shreve & Company of this city, has resigned her position and will, in the future, take an active part in the old, established firm of R. J. Waters & Company, in which she has acquired an interest. While with Shreve & Company, Miss Dahl, through the excellence of her work, increased the importance of her department to a wonderful extent, and we can safely predict that the same skill and enthusiasm for her work will greatly increase the business of the firm with which she has allied herself.

Mr. Leavick Goes East

S. L. Leavick, who has made, during the past four years, such a success of the photo mount department of the Zellerbach Paper Company of this city, starts on an extended trip through the East just as we go to press. While there Mr. Leavick will visit Rochester, New York, Philadelphia and other photographic centers, giving special attention to the Collins Manufacturing Company's plant in the latter city.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Dyes In Photography

The modern artificial coloring matters, the use of which is of importance to a large number of industries, in particular, those of dyeing and printing on textile fabrics, have a considerable variety of applications in photography, and the progress of photography in monochrome as well as in color owes a good deal during the past few years to this branch of purely chemical manufacture. The several purposes for which dyes are employed in photography may be stated as follows: In orthochromatic photography. In the preparation of non-halation plates. In color photography by the triple superposition method, in the making of color-screen plates, in processes depending upon the production of colors from colorless substances by the action of light, and in those based upon the bleach-out action of light upon dyes. Tinting of cinematograph films and safelight papers.

As is well known the negative obtained on an ordinary photographic plate is a false rendering of the action of rays of light of different colors. In the absence of special means, yellow, orange and red are reproduced as exceedingly dark tones in the photographic print, whilst blue and violet are represented by very light tones. A white drawing on a blue ground or black on red might thus yield a photographic copy consisting of one uniform tone in which none of the details of the design would be visible. Inasmuch as the relative sensitiveness of photographic plates can be modified in order to yield photographic renderings comparable with those perceived by the eye, the disabilities of the ordinary plate may be avoided by such orthochromatic or isochromatic preparations. The addition to the photographic emulsion of certain coloring matters effects a displacement of the actinic action of light, and imports to these preparations very considerable sensitiveness to rays of the greater wave lengths. At the present time, certain dyes are used which effect such a preponderating sensitizing action for yellow and green rays in comparison with violet that the sensitive plates can be employed without a compensating light-filter such as is ordinarily used to cut down a certain proportion of violet rays. The sensitizing action does not, however, correspond exactly with the absorption spectrum of the dye.

Only a small number of coloring matters possess these sensitizing properties, these dyes exerting their sensitizing action when present in very small quantities. Some of them act in so small a proportion that the sensitized plate possesses no visible coloration, appearing colorless to the eye. The dyes cannot be chosen as can those for the purpose of making colored screens, that is to say, by the examination only of their absorption spectrum although the optical sensitizing takes place in consequence of the plate with which dye has been incorporated, absorbing the rays for which the plate is sensitized. There are, in fact, dyes which sensitize for rays different from those which their solutions absorb; for it must be assumed that the dye possesses sensitizing properties only when it is able to form a compound with the silver salt analogously to the formation of a "lake". In this case it is the absorption spectrum of this compound which is the effective agent, and not that of the solution of the dye.

The examination of the absorption spectrum will thus give only very approximate indications of the color-sensitizing properties of the dye. Very dilute solutions of the dyes, so dilute as to exhibit no perceptible absorption, to the eye, nevertheless, are capable of exercising a pronounced sensitizing action. The feature which distinguishes a true color-sensitizing dye from one which acts simply as a screen is that the former exerts its action in these minute quantities and, therefore, without coloring the emulsion; also it gives rise to no reduction of the

sensitiveness, and, consequently, does not call for an increased time of exposure. The sensitizing power of a dye can only be determined experimentally by photographing a spectrum on a sensitive plate impregnated with the dye to be tested.

The principal classes of dyes among which are to be found color-sensitizers are the derivatives of diphenylmethane, triphenylmethane, acridine and phenyl-acridine and quinoline. There are, moreover, dyes belonging to other classes which exert a sensitizing action only when reducing at the same time the general sensitiveness. These dyes possess a very limited practical interest. The various dyes, according to their chemical constitution, produce sensitizing action in the different parts of the spectrum, but none of them, whether employed alone or in admixture in variable proportions permits of reproducing the spectrum with the relative value of colors perceived by the eye. Exceedingly effective sensitizing can, however, be obtained for limited parts of the spectrum, such as the yellow and the green of one part, or for the red of another. By utilizing these partial results, the employment of several dyes thus yields a sensitizing effect greater for the red and yellow than for the blue and violet, but still without attaining the respective color values perceived by the eye.

The dyes of the phthalein class are the most important sensitizers for yellow and green. Eosine, erythrosine and rose bengal are employed for the preparation of orthochromatic plates sensitive to yellow and green. Sensitizers for yellow and orange are the blue, violet or red dyes. Quinoline red, rosaniline violets, more particularly ethyl violet, and the cyanines are employed for the sensitizing of plates to red and orange. Lastly, certain cyanines permit of sensitizing at one and the same time to orange and red.

The manufacture of orthochromatic plates has made important progress during the past few years owing to the discovery of a large number of new cyanine dyes, the original type of which is ordinary cyanine obtained by condensation with caustic alkali of equimolecular compounds of quinoline iodo-ethylate and quinaldine in alcoholic solution. By employing the sensitizing properties of quinaldine quinoline ethyl-cyanine, Dr. Miethe provided the starting point of work undertaken by various dye factories for the preparation of new cyanine sensitizers.

The lepidine-cyanine blues exert their sensitizing action beyond C in the red of the spectrum, whilst the violet-red quinaldine-cyanines sensitize only beyond D ½ C in the orange. The quinaldine cyanines possess several advantages over the lepidine-cyanines, and as the sensitizing into the red is a very desirable feature, attempts have been made to produce quinaldine-cyanines of bluer color in order to increase the red sensitiveness. Dr. Konig has employed a whole series of substituted quinolines in order to obtain new cyanines, and has found that the iodo-methylates of quinoline and of substituted quinaldine (meta and para) yield bluer cyanines. Orthochrome T (para-tolu-quinaldine para-tolu-quinoline, ethyl-cyanine) exerts its sensitizing action not only in the orange, yellow and green, but in the red. Pinachrome, pinaverdol and homocol are cyanines analogous to orthochrome. Ethyl-cyanine, pinacyanol and dicyanine, discovered by Dr. Konig, possess notable sensitizing properties. The two first sensitize into the red near the line B with a notable predominance of the orange and red relatively to the blue. Lastly, dicyanine produces sensitizing into the extreme red, but without predominance over the blue.

The manufacture of dyes employed as color sensitizers has hitherto been the monopoly of a few German factories, but it can be readily undertaken, and at small cost, by French dye manufacturers, among the chemists of whom are undoubtedly those capable of discovering new dyes possessing sensitizing properties superior to the substances at present in use.

Among the various means for the prevention of halation the most effective is the incorporation between the glass and the emulsion coating of a transparent red-orange or green film, or one of suitable non-actinic color which absorbs all the rays after their reflection from the back surface of the glass. The dye employed for the coloration of this film requires not only to possess a suitable absorption spectrum, but should not diffuse into the emulsion and so reduce the sensitiveness of the latter. Moreover, it requires to be readily decolorized in order not to obstruct the operation of printing from the finished negative. Only a few dyes fulfil these requirements, among them Rosolic and Congo red.

The dyeing of cinematograph films for the

purpose of producing various artistic effects is a development which consumes very considerable quantities of the coloring materials, either for uniformly tinting the whole film or for coloring only the image portion of it. In the case of the first process the bands of film stretched on frames and previously soaked in water are immersed in dilute solutions of the dyes, which generally are those of the basic type, moved about in these baths until the requisite depth has been secured, then rinsed and dried. The local coloring of films by means of a brush which follows the outlines of the image is a process which from its nature is one which can receive little industrial application.

Lastly, a use of dyes which cannot be passed over without mention is in the preparation of the transparent papers of red, green or yellow color employed as safelights. These papers will in time replace the colored glasses of dark-room lamps, inasmuch as they possess distinct advantages over the latter. Apart from the avoidance of any risk of breakage the color can be chosen so as to obtain the maximum luminosity for the eye and the minimum of actinic effect upon the sensitive materials. Also by the use of these papers in a greater or lesser number of assembled sheets the illumination can be readily varied in any desired way and the safelight thus readily compounded in accordance with the strength of the light and with the special sensitiveness of the material which is being handled.

It will thus have been seen that dyes are employed in many numerous applications in photography, but at the same time it is to be noted that the properties which are acquired in these various photographic uses are different from those demanded in the dyeing of textile fabrics where, apart from the brilliancy of the color, the permanence of the dyes towards physical and chemical agents is the chief consideration. The special qualities which dyes for photographic purposes should possess are thus even now very imperfectly realized. There is ample opportunity for manufacturers to demonstrate their enterprise in the production of new products. These latter, even though they may be of no service in the dyeing of fabrics, will be assured of securing a considerable demand. The consumption of them may not be comparable with that of the substances employed in dyeing, but their relative high price should compensate in a measure for the lesser scale on which they are used, and should lead to the establishment of an interesting branch of dye manufacture.—A. Seyewetz *in Chemie et Industrie.*

Additive and Subtractive Color Processes

Several requests having been recently made to us for some explanation of the essential distinction between the forms of color process which are commonly referred to as "additive" and "subtractive", it may be of interest to others besides our correspondents if we print a few notes dealing with the theoretical conception which underly these processes. For that it is necessary to go back some little way to the phenomena of color vision, for after all color is a subjective phenomenon, and words about color only have a meaning in relation to our perception of color. Now even though it may not be indisputably established, our recognition of colors by the eye may be considered as based upon a three-color theory. There is reasonably good ground for the assumption that the eye perceives colors by first singling out the red, green and blue-violet in color, and then recombining these constituent elements in order to create the sensation of a compound color. It also is reasonably certain that the sets of nerves in the eye which perform this function are not separately sensitive with rigid sharpness to the three elementary color rays just mentioned. On the other hand, one color-sensation vignettes off, so to speak, into the next, but the predominant character of each is that associated with the sensation of either red, green, or blue-violet. Apparently it is still obscure by what method or process the sensation of compound colors is conveyed to our senses by the combination of these three separate color sensations. Probably it would not be correct to refer to that process as one of addition, but at any rate this term may be applied appropriately to the physical counterpart of the process which the eye performs, such as results from the combination of colored lights projected in super-imposition upon a screen. In these circumstances the combination of the elementary colors red and green and blue-violet produces white, that of red and green, yellow, that of blue-violet and green, blue, whilst that of blue-violet and red produces crimson.

Here we have the basis of the so-called

additive color-processes, the first application of which along photographic lines was made by Clerk Maxwell in the year 1861. With the comparatively meager facilities then available in the way of color-sensitive plates Clerk Maxwell showed that by separately recording the redness, greenness, and blueness of a subject in the form of photographic negatives, by printing from each negative of the three a positive transparency, and by projecting these transparencies in superimposition, each provided with a screen of color corresponding with that through which the respective negative was taken—by these means the colors of the subject were substantially reproduced. It will be seen that in such a process as this, which is essentially that of all additive methods, the function of the positive transparency is that of a stencil. The transparency, in other words, regulates the amount of red light, green light, or blue-violet light which shall be transmitted to the screen: regulates it, that is, in proportion to the relative quantity of these color constituents in the original subject. Later experimenters, as will be familiar to many readers, developed this process to a state of great perfection, notably F. E. Ives, by means of the instruments known as the Kromskop and the lantern Kromskop. Yet a common feature of all the results produced by these additive methods was that, after all, they were optical effects as distinguished from concrete reproductions such as one could separately handle and distribute. Up to this time the embodiment of the additive process in a form which could be called a color photograph had been realized only in the way of suggestion by the far-seeing French investigator, Ducos Du Hauron. It remained for Professor Joly and MM. Lumiere to give practical shape to these ideas. The screen-plate in its banded Joly form or in the form of the autochrome is thus a variation of the additive process in which combination of the three primary colors—red, green and blue-violet—results not in the superimposition of colored patches of these lights, but by the mingling of microscopically small areas of them. Inasmuch as the eye is unable separately to distinguish the minute color elements (red, green and blue-violet) in the auotchrome transparency the combination of these colors takes place by the simplest of processes. As in the Ives method the positive transparency which forms one layer of an autochrome again plays the part of a stencil, covering such color-elements as are not required and leaving uncovered those which corresponded with the effect of light upon the sensitive emulsion in the first instance.

When we come to subtractive methods, the rationale of the process is somewhat more complex, although the principle is in great part the same. The subtractive method depends not on mixing colored lights but in starting with a surface which reflects or transmits white light and laying upon it, by a photographic process, pigments which will abstract such color components of the white light as will leave colored rays corresponding with those separately registered by the three negatives taken of the subject. As in the additive process, we start with recording the redness, greenness and blueness occurring in the subject. It will be simpler to follow the process by taking the single instance, say, of a red. The problem is to supply pigment, to, say, a white sheet of paper such that all rays but red will be absorbed from the light reflected from it. Inasmuch as we know that red subtracted from white light leaves the two other primaries, green and blue-violet, it will be understood that to absorb these latter and to leave the red it is necessary to employ pigments which are the complementary of these two colors, that is to say pink (the complementary of green) and yellow (the complementary of blue). Thus in the case of a subtractive method the negative which records the greenness is printed in pink; that which records the blueness is printed in yellow. With the result that any part of the subject which consists of pure red receives a pink deposit from the green sensation negative and a yellow deposit from the blue sensation negative. The two together thus absorb all rays but red from the light producing a reproduction of this original color in the subject. It must not be forgotten that these absorptive properties of the pigments employed in subtractive processes are not the only desideratum. For satisfactory results the pigments should reflect all the colors they are not required to absorb. A little consideration will show that the same kind of absorption process goes on in reproduction of the other primary colors green and blue-violet and equally in the case of all the endless combinations of all three.—*British Journal of Photography.*

Coloring Enlargements

A. Vernon Godbold, writing in *The Amateur Photographer,* says: Enthusiastic amateurs at this season of the year are making enlargements from their best negatives, some no doubt to be used as Christmas gifts, and it has doubtless occurred to them that some one or other out of the batch lends itself to their sixth sense—that of color; but the wish passes at the thought of the paraphernalia required to employ color. Recently an Australian soldier came to me for a lesson in coloring, and desired a simple kit so that he could amuse himself at odd times. After a lengthy discussion it ended in him taking the following packed in a flat box: A few pastels; a bottle of wax medium, a piece of rag and a small brush.

Thinking that a simple, cheap, easy and permanent method would recommend itself, I will endeavor to describe the procedure briefly, first explaining the medium. This consists of

Beeswax	¼ ounce
Potassium carbonate	12 grains
Water	1 dram
Turpentine or benzine	1 ounce

The wax is first melted: I generally use a small jelly jar standing on a piece of wood in a small saucepan filled to half the height of the jar, then the carbonate dissolved in the water is added, and the mixture well stirred. The vessel is removed from the heat, and the ounce of turpentine or whatever is chosen is added and stirred in for awhile. The mixture should have the consistency of cream. If it is too thick, more turpentine may be added. Before it is quite cool it is poured into a wide mouth bottle, a two-ounce squat such as photographic chemicals are often packed in, is the thing.

Excellent soft pastels are made by Lefranc, Macle and Rowney. I must impress the importance of getting the soft variety, as the hard and semi-hard are useless for the purpose. Messrs. Rowney are, I believe, the only English makers of pastels, and though the range of their colors is less than that of some of the French makers, the character of the pastels they issue is excellent. They are permanent, and have the advantage that the labels are printed in English.

Portrait palette: Intense black, Naples yellow, yellow ochre, vermillion, crimson lake, cobalt, silver white, terre verte, burnt sienna, raw umber, French brown and sepia. Landscape palette: Chrome, yellow ochre, crimson lake, light red, cobalt, prussian blue, Hooker's green, olive green, French brown, raw umber, intense black and cream white.

Except as regards black and white, the deepest shade should be purchased. This is No. 6 in each case. These contain nearly pure powder color, which is what is required for the purpose. As the price averages about five cents each, the outlay is small. A piece of soft rag, such as an old pocket handkerchief, and a small round brush will also be required.

For the first attempt, it is well to use a spoilt enlargement, or a wide trimming, on which to try the method. A small piece of pastel is reduced to powder on the back of a plate, moistening it with the medium, and then rubbing it on the paper with the fine white linen stretched over the forefinger, or for very fine work a piece drawn tightly over a leather or paper stump, or even a piece of elder pith cut to the shape required. For very small details, thin transparent tints are applied with the brush.

The most suitable papers for coloring are the matte and semi-matte. Rough surface papers are not so suitable, as the color gathers in the interstices, and is apt to give a dirty result. Glossy should be avoided, although it can be used by artists of experience. Strong brilliant prints will be found the best for this treatment; not hard, but clear and bright, with well marked gradations, as the black and white image has to show through the coloring and supply the light and shade.

The secret of success lies in the ability of the worker to leave just as much color as will give the desired tint with the least amount of medium. If the tint is too strong, it may be thinned with spirit; if too weak, more powder color can be added.

So far the coloring should be transparent, as though colored by dyes, the light ground being made use of as with water color. But it will be found that the tinting is not strong enough to get rid of the heavy shadows. Now pastel in its pure state is opaque, and the very material for covering power; so one has merely to apply pastel powder to the shadow, the shade being mixed in powder form and applied. The wax in the under tint is sufficient to hold the overlay, if it is not applied too thickly. Heaviness of color would be out of keeping with the tinting in

the lights; all that is necessary is to color the shadow.

As an example of working, say, a soldier's coat in khaki, we can make up a tint with raw umber No. 6 and medium, rub it evenly all over, and then wipe out the buttons clean. Next, the same color in dry form is applied to the heavy half darks and shadows. Similarly with the buttons and other crisp brilliant high-lights in any part of the picture: these are like jewels, put on last.

I do not think for a moment any difficulty will occur in applying the method; the difficulty, if it comes at all, will come in mixing the color to the tint required, and in deciding the scheme of color. Therefore it is well to keep on the safe side by making the tinting subdued, and not to attempt strong screening effects until experience has been gained.

A little black will be found helpful in toning down some colors to the tint required. The white pastel is for brilliant touches, say on a white collar. It is general knowledge that yellow and blue pigments make green, and that orange and other colors are got by mixture: therefore it is not necessary to explain these points.

The advantages of this method are many:

If the tinting is not to one's liking, it is cleaned off easily with turpentine and benzine without a stain.

There is great economy of color, as a grain of powder the size of a pin's head will more than tint a two-inch face.

Color can be spread, blended or graduated at will, wherein the method is quite different from the use of water colors, which do not hold on gelatine paper, lifting on the slightest retouch.

It is quicker than the air brush. Various tints are picked up from the palette and immediately applied. There is no color cup to be constantly washing out and recharging; there are no masks to cut, and no preparation required. Moreover, the result is a clean, clear tint, without the "half-tone fly mark process" so evident in cheap air brush coloring.

The method permits of mere tinting, or of a strong effect of color, according to the artist's ability.

Pastel has the double value of furnishing both transparent and opaque elements, and simplified at that. There is no need to buy a box of two hundred and fifty sticks.

The medium can be made slow drying by the use of turpentine substitute, or quick drying by benzine or petroleum spirit to one's liking. Personally, for pastel purposes I use motor spirit: half a pint will do a lot of work. A friend provides this for the asking, and as he says he must not sell it, it is the cheapest vehicle I use. Too much medium should not be used, otherwise the final crisp touches will not take kindly. What is wanted is just enough wax left on the paper to hold the powder when the spirit has dried off.

Water colors have been pithily described as a frivolous lie, pastel in the orthodox manner a fuzzy lie, oil painting as being a big solid lie. My wish is that the reader will find this method capable of a charming lie.

"Heaven, earth and what is between"

This is the amateur's gamut, upon which he can harmonize the scale of his emotions, drawings executed by camera magic, time the only controller of the extravagance of his color sense. The music of light awaits his indulgence. Happy amateur!

Intensification of Flat Negatives

In *Il Progresso Fotografico,* Professor Namias gives instructions for dealing with negatives that require considerable improvement of contrast. The method is one which is deserving of mention, inasmuch as it utilizes intensifying solutions in common use, and yields a result which should not be open to objection on the ground of impermanence. The negative is first only partially bleached, only to the half-tones, by a very short application of a bleaching solution as used for the chromium intensifier, namely, two grams of potassium bichromate and five cubic centimeters of hydrochloric acid in one thousand cubic centimeters of water. As soon as the half-tones only have been bleached, as judged from the back of the plate, the latter is well washed, immersed in a bleaching bath of mercury bichloride until fully whitened, and again well washed. It is then re-developed in full daylight until thoroughly darkened through to the glass side. The rationale of the process is the conversion of part of the image into silver chloride, and of the remainder into silver-mercury chloride. The former is simply restored to metallic silver, but the latter to metallic silver and mercury.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Suiting the Light to Negative

There was an amateur in here the other day extolling the superior skill of another worker, a mutual friend, at least in the matter of making enlargements. It seems that my visitor had had an enlargement made by a professional, a poor wishy-washy thing, while the same negative turned over to this mutual friend who had only a simple little home-made contrivance to work with, proved capable of producing an excellent print. The only trouble with this mutual friend was that he did not seem to have the same degree of skill in dealing with my visitor's contrasty negatives. I really did not like to minimize the credit that our mutual friend was so successfully earning in his production of bromide enlargements with his home-made apparatus, but I had to explain the matter was not at all one of superior skill. The soft, thin negative required an enlarging apparatus depending upon a light of very low intensity, while the contrasty negatives required just the opposite. The professional enlarger was evidently equipped with a strong light and had simply neglected to tone it down when making the enlargement from the thin negative, perhaps not wishing to do so through a fear that proper timing would be more difficult for him. To that extent he lacked skill, or what is the same thing, nearly, an inclination to take trouble to secure the best results. What his amateur friend wanted in order to deal with the contrasty negatives was a more brilliant light, not more skill in using the weak one that he was no doubt employing.

Keeping Sulphite Solutions

It is well known, or ought to be, that a solution of sodium sulphite retains its activity only about two weeks, the length of time depending upon the amount of dilution,—too strong or too weak a one both suffering alike, and of course upon the purity of the sample used, this last also determining the exact strength that will keep the best. But, as Welborne Piper pointed out many years ago, the addition of potassium metabisulphite adds many times to the keeping quality of the solution. He recommends:

Sodium sulphite crystals... 4 ounces
Potassium metabisulphite.. ½ ounce
Water ..... 20 ounces

As every five ounces of this contains an ounce of sodium sulphite the use of the solution becomes quite easy with any ordinary developing formula. The metabisulphite is itself a good preservative, frequently recommended in place of sulphite in developer formulas, so that its use as above has no disadvantages whatever; in fact, forming as it does a practically neutral solution when added to the sulphite, the solution becomes an ideal one for use in making up any developer, either the ordinary or the acid kind. With it an excellent amidol developer is produced. One has but to place four ounces of the above in a graduate, stir in from forty to sixty grains of amidol, and then make up to twenty ounces with water. The more amidol the bluer the tones. Made fresh in this way, amidol is perhaps one of the best developers known for developing and bromide papers.

Comparative Strength Alkalis

We sometimes want to substitute one alkali for another in our developing formula and the following table of relative proportions will be found useful:

Sodium carbonate, crystals	286.
Sodium carbonate, anhydrous.....	106.
Sodium hydrate (caustic soda).....	80.
Potassium carbonate	166.
Potassium hydrate (caustic potash)....	112.

We might explain that to use the table to find out how much of the to-be-used alkali is required to replace that called for in the used formula, simply multiply the quantity of the latter or old alkali in the formula by the figure opposite the new in the above table, and then divide by the figure opposite the old alkali in the same table. For example:

A formula calls for one ounce of sodium carbonate. One ounce is four hundred and eighty grains; which, divided by eighty, the figure opposite the alkali we wish to use, gives thirty-eight thousand four hundred. This divided by two hundred and eighty-six, the figure opposite sodium carbonate crystals, gives us one hundred and thirty-four, the number of grains of caustic soda required to take the place of the ounce of sodium carbonate crystals.

Ground-Glass Between Condensers

In reply to a New York correspondent, a sheet of ground-glass between the condensers is a very good idea if the source of light used is sufficiently intense to permit of it without slowing up the exposure too much. With this glass in position the illumination is evened up and there is practically no danger of an image of the source of light, as sometimes occurs with lenses having a focal length of a certain proportional relation to the focus of the condensers. The ground-glass should be as fine grain as possible and it should be so arranged that the condensers do not touch it, to avoid trouble when the former become heated. It should be cut round, a little smaller in diameter than the condensers; and, one wide strip of corrugated board to which two narrower strips have been glued in such a way as to leave a narrow channel between, makes an excellent device for holding the ground-glass in place by bending it around the edge in such a way that the channel just engages the glass while the width of the strip coming outside just fits the marginal space between the two condensers.

The Meaning of Certain Terms

An Ohio correspondent has asked us to explain the proper meaning of a few like terms, and this we will try to do, first assuring him that his query is justified by the occasional misuse of all four of them. Microphotography is rightfully applied only to the production of very small photographs, those sometimes inserted in the handle of cheap pen-knives being good examples; photomicrography, on the other hand, having to do with the photographing of the magnified image that the microscope gives us of microscopic objects. Telephotography, custom dictates, means photography done with a telephoto lens or a lens made by combining a negative and a positive combination used to secure an enlarged image, or rather, an image larger than would be secured with an ordinary lens. Photo-telegraphy means something entirely different, namely, the transmission of pictures of a photographic nature by telegraphic methods.

Blisters In Sulphide Toning

An Illinois correspondent complains of blisters on his prints that have been subjected to the sulphide toning process. The best remedy, or preventative, rather, is to use an alum fixing bath and to dilute the sulphide bath, making it work slower. There should of course, be enough of the sulphide present to do the toning, but aside from that, the weakening of the bath has only the effect of slowing up the results. The slower effect seems to be less detrimental to the emulsion film as one can easily learn by subjecting a strip of the bromide paper to a strong and a weak solution. In the first case the emulsion will shortly be in a most deplorable state of "mushiness," while in the other the suffering of the film will be a great deal less.

Test of Hypo

An Indiana correspondent asks us to repeat this. The instructions read: Dissolve five grains of potassium permanganate and twenty grains of caustic soda in five ounces of water and set aside for a stock solution. To test the drippings from the corner of a plate, film or print, to determine if the hypo is all removed, add enough of this stock solution to a little water in a graduate to color it a faint pink shade, and allow drop or two of the draining from the print or plate to fall therein. If the pink tint is changed or discharged, the presence of hypo is indicated and the washing of the print or plate should be continued.

Single Transfer Paper

An Oregon correspondent wants to know if he can prepare his own single transfer paper for carbon work. It is quite easy and he can use any ordinary white or tinted paper that may please his fancy and have sufficient stability to answer the purpose. The paper is simply sized, by immersion for a minute of two, in the following: Dissolve three drachms of borax in ten ounces of boiling water, and then add slowly, with stirring, an ounce of shellac, gently continuing the boiling until completely dissolved. When cool, immerse the paper for a minute or two and then hang up to dry.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

The Next California Album

An album for circulation among those members of the I. P. A. in California who contribute prints therefor, is being made up. Those members who wish to have the pleasure of seeing this collection should send prints, any number and any size up to 8x10, to the State Secretary, A. E. Davies, 1327 Grove Street, Berkeley, California. Every California member should send a few of his best prints, not only to help make the 1919 album a complete success, but to assure himself the pleasure of receiving the collection, as it is sent out over its route.

Circulating Lantern Slide Set

A. E. Davies of 1327 Grove Street, Berkeley, California, is making up a set of lantern slides to circulate among those slide workers west of the Rockies who contribute thereto. If you wish to see this set, send five unmounted slides to Mr. Davies, who will, after mounting them to a standard of titles and binding, route the complete set to each member who has contributed. At the same time advise what subjects would most interest you in a set of slides, and, in the near future, an endeavor will be made to make up circulating sets containing the most popular subjects, as so indicated.

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington Street, Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Claus Spreckels Building, San Francisco.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

John Bieseman, Director Post Card Division, Hemlock, Ohio.

James B. Warner, Director Stereoscopic Division, 413-415 Claus Spreckels Building, San Francisco.

A. E. Davies, Director Western Lantern Slide Division, 1327 Grove St, Berkeley, Cal.

Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4573—Aloysius J. Seifert, 429 S. William St., South Bend, Ind.
Class 2.

4574—Chas. H. Libhart, 1248 E. Washington St., Stockton, Cal.
3¼x5½, developing papers, of views of Yosemite; historic buildings of Monterey and others; for pictures of historic buildings and views of general interest. Class 1.

4575—I. E. Rodgers, 464 Orange St., Macon, Ga.
4x5, 5x7 and 6½x8½, various papers, of marine and Western views; for anything of general interest. Class 1.

4576—P. S. Daniells, Hughson, Cal.
3¼x4¼ to 5x7 enlargements, developing papers, of landscapes, marines, exposition, a few copies of paintings and figure studies, for pictorial landscapes, marines and figure studies. Class 1.

4577—A. R. Davis, Jeffersonville, Ohio.
Class 3.

4578—R. C. Heagey, 29 Lincoln Ave., Lititz, Pa.
2¼x3¼, 3¼x4¼ and enlargements up to 5x7, various papers, of nature studies, scenery, and rural views of S. E. Pennsylvania; for the same. Class 1.

4579—Robert C. Swanson, Box 103, Laurium, Mich.
3¼x5½ and smaller, developing papers, of landscapes, snow scenes, water falls, lakes and industrial views; for views of National Parks, mountains and similar to above. Class 1.

4580—Raymond Coller, Brockport, N. Y.
2½x4¼, 4x5, 5x7 and enlargements, various papers, of scenery, landscapes, Falk River scenery and miscellaneous; for old ruins, animals, birds, scenery, general views and marine subjects. Class 1.

4581—George W. Greene, 745 Milwaukee Rd., Beloit, Wis.
3¼x5½ and enlargements, various papers, of human interest and action; for action pictures and art studies, women preferred. Class 1.

4582—Arthur J. Kelly, Drawer F, Blairmore, Alberta, Canada.
2¼x3¼ and 3¼x5½, developing papers, of mountain scenes; for water scenes and landscapes with trees in foreground. Class 1.

4583—O. J. White, 1729 California Ave., St. Louis, Mo.
Class 2.

4584—Paul T. Bjork, P. O. Box 35, Ringling, Mont.
Class 2.

4585—Willard Oakes, 1229 East Main St., Portland, Or. Class 2.

4586—Ernest L. Bigler, Route 2, Macon, Ga.
3¼x5½, various papers, of landscapes, street scenes, curious scenes, night scenes, water scenes and industrial pictures; for the same. Post cards only. Class 1.

4587—J. S. Geitwite, 155 R. R. St., Bloomsburg, Pa. Class 3.

4588—H. K. Witherspoon, care Western Carolina Power Co., Bridgewater, N. C.
3¼x5½, developing papers, of nature pictures, trains, views of large hydro-electric development and miscellaneous; for miscellaneous prints on single weight paper for mounting in album, prints to have white margin, same size as above. Class 1.

4589—J. William Hazelton, 116 Monongalia St., Charleston, W. Va. Class 2.

RENEWALS

2885—George Macaulay, 167 Allen St., New Bedford, Mass.
1⅝x2½, 3¼x4¼, 3¼x5½ and 6½x8½ enlargements, developing papers and post cards of marines and general views, also lantern slides; for views of general interest, especially mountain scenery. Class 1.

3255—A. M. Sutton, 175 South First St., San Jose, Cal.
Class 2.

3848—William Charles, Box 33, Basom, N. Y.
Class 2.

4001—Fred Weidman, 1692 2nd Avenue, New York, N. Y.
Class 2.

4127—J. W. Kepler, Jr., Box 652, Renovo, Pa.
Wish to exchange any size prints up to and including 6½x8½ of mountain scenes, figure studies, studio and home portraits, nudes, semi-nudes, draped and undraped; for artistic figure studies from original negatives, studio and home portraits of pretty girls (low bust pictures preferred), bathing girls, nudes and semi-nudes, draped figures and anything in that line. All exchanges of the foregoing subjects promptly answered with a like number of prints. Class 1.

4172—J. C. Flint, 687 61st St., Oakland, Cal.
3¼x4¼, 3¼x5½ and 4x5, developing papers, of landscapes, architectural, marines and wood scenes; for the same. Prints only. Class 1.

4328—Hubert R. Wiswell, Westbrook, Minn.
Class 2.

4330—O. L. Wahlgren, Route 9, Box 36, Fergus Falls, Minn.
I have for exchange typical scenery from Minnesota's Park region, ice and snow scenes, moonlight views, cloud effects, some native wild birds, nests, etc., some home portraits and children's photos, some domestic animals and farm scenes; for anything good which is of general interest. Would particularly like wild mountain scenery and views from Glacier National Park, etc., single weight prints. All work sent and received on approval. Class 1.

4443—Clarence E. Bundy, Box 25, Tacoma, Ohio.
3¼x4¼ to 5x7, various papers, of nature, birds, nests, some pictorial work; for the same or any good work, like ocean and mountain scenes. Class 1.

4456—H. J. Fromm, 170½ Catherine St., Elizabeth, N. J.
Prints 4x5 and smaller of landscapes, marines, home portraits, general views, etc.; for the same and figure studies, bathing scenes, etc. Prints only; all correspondence answered. Class 1.

4461—William P. West, 2707 East 4th St., Long Beach, Cal.
3¼x4¼ and 5x7 and lantern slides, of beauty spots of California coast scenes and bathing girls; for the same, also views of general interest. Class 1.

4491—Juan Emilio Decker, P. O. Box 44, Rio Grande City, Texas.
Vest pocket up to 3¼x5½ prints and enlargements, various papers of general and historical subjects, landscapes, nudes, clean, genre and character studies, specialty on typical scenes of Mexican life and ways of people; for mountain scenery, good landscapes, character studies and anything with pictorial quality and artistic value. First class work sent and accepted only, no glossy surfaces desired. Class 1.

4547—Adrian Delsman, 1202 Boylston Ave., Seattle, Wash.
Class 2.

CHANGES OF ADDRESS

1924—Ernest J. Fox, Pipersville, Pa.
(Was Weldon, Pa.)

4049—Robert S. Blatchford, care F. A. H., Mail Box, Datil, N. M.
(Was Magdalena, N. M.)

CLUB NEWS AND NOTES

Chicago Camera Club

The monthly program of this quite active organization lists a series of attractive events for the regular Wednesday evening meetings, as follows: February fifth, Frederick O. Bemm will show autochromes and relate his experience with them; February twelfth R. J. Fallert will give a talk on photographic papers made by the Eastman Kodak Company; the nineteenth Lieutenant Furness will tell about aerial photography, and the twenty-sixth there will be a studio demonstration followed by a review and criticism of prints. The first half of the month the walls will carry the work of B. J. Morris and George H. High; the last half, prints by B. F. Langdon of Milwaukee.

OUR BOOK SHELVES

The First Book of Photography

A new and revised edition of this popular hand-book has just been issued and any beginner is assured of a generous measure of information from its pages. The author, the well known writer on photographic subjects, C. H. Claudy, aims to tell the beginner how to get six good pictures from a six exposure film, and do it every time. He assumes that the reader has no photographic knowledge whatever and in that way avoids the danger of leaving out many little but essential bits that may handicap the beginner. It is not a large book but a well printed and interestingly illustrated one. Published by Robert M. McBride & Company, Union Square, New York City; price seventy-five cents net, postage eight cents.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Nathan Reiman of Stockton surely has an up-to-date Kodak finishing plant and Mrs. Reiman certainly is an ideal assistant.

Harry Chubb is doing some very fine work for the Logan Studio of Stockton.

Harry Baker has moved his Menlo Park place to Stockton.

F. H. Hanson of Stockton is using Eastman Portrait film exclusively and swears by them.

L. G. Bauman of Fresno expects to open a studio of his own in the near future.

The Royal Studio of Fresno has lately made some extensive alterations.

H. C. Jenson is the busiest photographer in Selma.

Tod Claubes now has a fine double store in Porterville.

Both of the Dorman Brothers have been kept busy for several months with their steadily increasing business.

Miss Tucker still has charge at the Broadway Department Store, Los Angeles.

And C. W. Courtney still parts his hair in the middle.

S. Lemoigne and his wife have both recovered from the "flu". They were in the hospital at Santa Barbara.

H. F. Hoefle and Fred Seygler were both with us during February.

John T. Hall has a friend who is well worth knowing, a gentleman who manufactures a good article of port wine.

J. C. Vassar is still making improvements in his studio at Salinas.

Enjoying a Vacation

L. E. Rea, so well and favorably known to the customers of Hirsch & Kaye, this city, has resigned his position with that firm and is taking a little play spell before relocating. Mr. Rea has been with the firm mentioned for nearly twelve years and during that time has earned an enviable reputation both as a salesman and as one more than usually well informed on the subject of lenses and shutters and the intricacies of the many different forms. To this particular line Mr. Rea has given much study and experimental work and his advice on anything connected with the subject is well worth considering.

"Photograms of the Year 1918-19"

This will contain the same number of pages as last year, and the same attractive features in text and finely printed illustrations. It is the only annual that reproduces the best pictorial work of the year as shown in the salon and big exhibitions here and abroad. There is an assured sale for the book among pictorial workers, and as the American edition is restricted, orders should be placed early. The selling price has been advanced as follows: Paper covers, two dollars; cloth binding, two dollars and fifty cents. This advance barely covers the increase in cost. Tenant & Ward, 103 Park Avenue, New York, are distributors. The local firm of Hirsch & Kaye, 218 Post Street, San Francisco, California, will have an early supply, expected about the middle of this month, and will be glad to furnish copies postpaid to Pacific Coast purchasers at the above prices.

A Chance To Make Money

In this issue will be found the advertisement of Haloid Company of Rochester, New York. This should be given attention by our readers and those doing amateur finishing should call the attention of their customers to this, the first announcement they have seen fit to place in our pages. Not that they have been trying to keep our readers from knowing about a good line of papers, but because they have not, heretofore, felt sure that their capacity would take care of an increased demand. Those who have tried Haloid paper are loud in their praise, many of them making the handsome linen finish a leader in their studios and an easy method of commanding prices not obtainable for ordinary prints. All the Imperia grades

are handsome papers, there being a smooth matte, a semi-matte, and a slightly rough matte, the last and the buff Imperia also being made with a sheen surface. Haloid Cameo is another popular brand, particularly with those desirous of turning out sepias of the highest quality. Write the firm for list and prices; and if you are interested in any particular grade or surface of developing paper, they will no doubt be pleased to send you a sample for trial.

Pictorial Negatives Wanted

In our "Camera Wants" section this month will be found an announcement from the Van De Grift Art Studio of Ft. Wayne, Indiana, asking that those having negatives of certain subjects send prints for examination, stating prices wanted for the negative or negatives. This firm, we understand, wishes to purchase these negatives in order to add to their line of popular photographic art subjects of which they sell a large number each year.

A Bargain In Motion Picture Cameras

Any of our readers who may contemplate entering the moving picture field will do well to consider the bargain offered in the half page advertisement of the New York Camera Exchange in our front advertising section. While these cameras are, of course, not in the same class with the complicated and complete outfits costing from five hundred to a thousand dollars and over, they are perfectly practical and satisfactory machines for ordinary moving picture work. We have seen some very fine film produced with them, in fact, there are several of them in the hands of local parties who bought at the original price from the manufacturers, and they have all done very good work with them.

New Students Fill Depleted College Ranks

Twenty new students have just enrolled at the Bissell Colleges. This means that the ranks of the local institution, which has been depleted during the war, will begin to fill up again, and that Effingham will more than welcome them among its population. We are also informed that there will be twenty or more students arrive the last of January.

The list shows that the Orient is represented in the personage of Lin Wa Sun, of Hongkong, China. The Orient has had many representatives in the Bissell Colleges from time to time. In the list are also the names of several soldiers, Oscar Brindley of Coleman, Alberta, and D. T. Hyde of Greenville, Saskatchewan, Canada, both of whom have seen active service in the recent war with the Canadian troops, Thomas F. Dillon of Philadelphia, was in the aviation service of the United States, having made the trip from England to France and vice versa, on several occasions while overseas, via airplane. Lieutenant I. Snodgrass' name also appears on the list. Harry Burke of Chicago, one of the new students is identified with the firm of Burke & James, of Chicago.—*Effingham Democrat.*

Illinois College of Photography

Lester Jones, 1918, after spending the summer at the Moffett Studio in Chicago, has returned to Effingham, married Miss Leila Poynter and opened a studio. With Mr. Jones' qualifications and such a capable wife, his future success is assured. He has our warmest congratulations.

Photo Paper To Be Manufactured On the Pacific Coast.

There has recently been incorporated in San Francisco the Pacific Photo Products Company, who have purchased the plant and formula of the Pacific Photo Paper Company, a firm that embarked in the manufacture of a photographic paper in San Francisco just before the outbreak of the war. The old company, of course, was unable to continue on account of the inability to obtain raw materials. The new company has completed contracts for the purchase of raw materials and the factory is now in course of completion. More details will be given in our next issue.

Quality Finishing

In our advertising pages this month will be found a small announcement, about two inches, calling attention to the developing, printing and enlarging done by Harry T. Misumi, who occupies the entire sixth floor at 973 Market street, this city. We have been acquainted with the quality of the work turned out by him during the past ten years and can assure our readers that they will have no cause for complaint concerning any work entrusted to him. Write for a price list and then give him a trial order. Everything is given careful attention and you will be pleased with the results.

XXVI No. 4 APRIL, 1919 Price, 10 Cents

CAMERA CRAFT

SAN FRANCISCO
CALIFORNIA

Monomet

The Developer of the Present

MONOMET IS THE ONLY DEVELOPING AGENT IDENTICAL WITH METOL IN RAPID, ENERGETIC ACTION

MONOMET develops in the same time as Metol and gives the same characteristic richness and quality—with a tendency to more brilliancy. This fundamentally essential point many are endeavoring to secure by the addition of a caustic alkali, as an accelerator, to developers of the paramidophenol class—which always tends to rob the print of the typical richness required in prints on developing paper.

MONOMET has been tried out thoroughly in comparison with other modern developers and its results are unquestionably superior.

MONOMET sepias are identical with those produced from prints developed with Metol.

PRICE

One-pound container	$22.50
Half-pound container	11.50
Quarter-pound container	6.00
One-ounce container	1.50

ANSCO COMPANY Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

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"SUNSHINE"
By NANCY FORD CONES

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

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Improving the Negative for Printing

By Paul Oesting

With Illustrations by the Author

Working on the glass side of the negative may be considered faking, but its legitimacy is a question with which I do not propose to deal. The subject is controversial, it has been debated at length, and there will always be a division of opinion on the subject. Some will maintain that such treatment should never be allowed upon a negative, particularly when the results are such as could be obtained otherwise; contending that the necessary precautions, taken at the outset, are the only means allowable in pure photography. On the other hand, others contend that any means of control are allowable and legitimate.

The principle of working as a means of improvement, upon the glass side of the negative, is in reality hardly more than local intensification and reduction; but, with a little practice it becomes much easier. In addition, it is safer, for the reason that the film is not interfered with in any way. If, by choice, any parts of the prints are desired to appear or be made lighter, density can be added to the corresponding parts of the negative in what may be termed an artificial manner, inasmuch as it is added to the glass side instead of the film side which would be the case if the the film were treated chemically. On the other hand, if parts of the picture are to be printed darker, those corresponding parts of the negative may be made thinner in order that the light may penetrate more easily, and while this is usually accomplished by means of mechanical or chemical reducers applied to the film side, one can, by properly coating the glass side of the negative with a translucent or semi-opaque coating and clearing it away where desired, achieve the same result.

A STRAIGHT PRINT FROM ORIGINAL NEGATIVE—Somewhat unsatisfactory as to lighting and aerial perspective

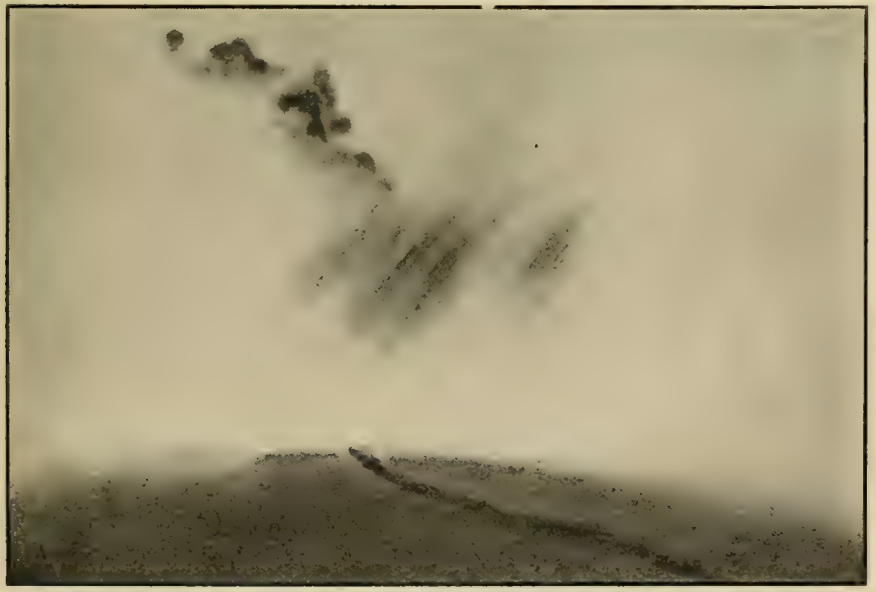
There are a number of ways of working upon the glass side of the negative, several of which are quite satisfactory. One is to work upon a piece of tracing or onion-skin paper attached to the back of the negative. I have found it advisable after giving the glass side of the negative a narrow edging of paste, to moisten the paper before applying it. This last is best done by allowing the dampened paper to lie flat and bringing the paste bordered glass side of the negative down upon it. By expelling the air bubbles with a squeegee before letting it dry, the paper will adhere more closely and be perfectly flat. Another plan is to flow the back of the negative with a groundglass varnish, this giving a surface or "tooth" that readily takes the pencil or any other medium that one may care to use to produce the desired effect. Besides the different grades of pencils available for the work, I have found French crayon sauce an impalpable black powder that is best applied with a chamois or paper stump, very practical.

Matt varnish, plain or colored, as a base upon which to work, has always been advocated more or less, especially in the past when the dry plate was not made color-sensitive, as it now is, when the colors and the lights and shades were not as faithfully rendered as they are today. Always conceded to be good, its failure of wide adoption has been due to the fact that even advanced workers and those whose familiarity with the wet plate caused them to be expert in the flowing of an emulsion over the surface of a plate, readily acknowledged that they found it a difficult matter to apply such varnish evenly. Matt varnish, once applied to the glass side of a negative, gives a surface upon which it is fairly easy to work with pencil, charcoal or any medium desired.

I have mentioned only these two methods of procedure because they are the ones I have myself used with success. There is still another that I feel should be embodied in this article, one that I came across in a photographic

FROM AN IMPROVED NEGATIVE—Illustration below shows work done. Notice this has lighter foreground, darker distance, additional cloud effects, together with a pleasing rendition of light breaking through clouds

journal some time ago, and one which I think of sufficient importance as a method that might appeal to a great many workers. It is, in practice, the application of candle grease or wax, involving only the lighting of a candle and permitting the grease to drop on the glass side of the negative over those parts it is desired to strengthen. This done, the negative is next held quite flat, emulsion or face side downwards, over a glass jet or lamp until the wax becomes melted and flows evenly over the surface. This film of wax soon cools upon



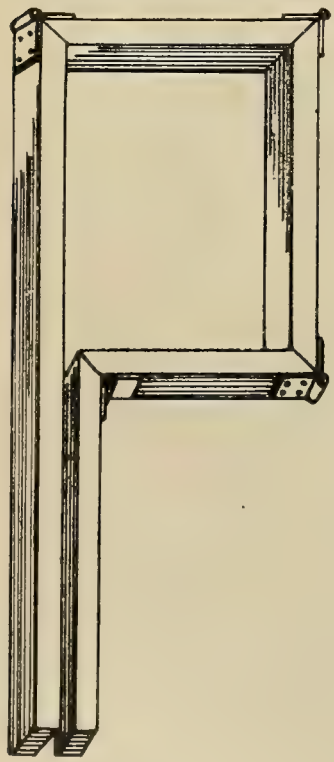
Showing work done on glass side of negative before making print reproduced above

removal from the heat. The result is an even coating of wax, very fragile, it is true, but sufficiently opalescent to improve considerably the printing quality of the negative. This wax can be very easily scraped away from over those very thin parts where it is not required, while the coating of wax allowed to remain holds back the shadows. The density of the coating can be varied by using more or less of the wax, making the coating thick or thin.

If one elects to use a varnish rather than paper or other material, there are a number of good formulas available. One that I have found very satisfactory is as follows:

Gum sandarac	45 grains
Gum mastic	10 grains
Ether	1 ounce
Benzole	¾ ounce

Dissolve the gums in the ether before adding the benzole. Slightly decreasing or increasing the amount of benzole will give a finer or coarser matt as desired. The difficulty of flowing the varnish, an operation requiring considerable practice and skill, I have overcome in my own case by means of the little device shown in the sketch herewith. Four strips of blotting paper are cut to fit the inside of the parallelogram and these are lightly packed in place with a few small touches of glue or paste. Then, by bringing the frame down over a plate and pinching the two handles together, a small tray is formed with the negative acting as the bottom thereof. One then has only to pour in a sufficient amount of the matt varnish and flow it about without fear of its running off at one side before the surface is evenly and completely covered. Any surplus can be poured back into a funnel that will filter it into the bottle. A small bolt, fitted with a winged nut, should be inserted through the two handles, close up to the hinge on the shorter one. This will give a better grip upon the negative and avoid the necessity of holding so tightly with the hand.

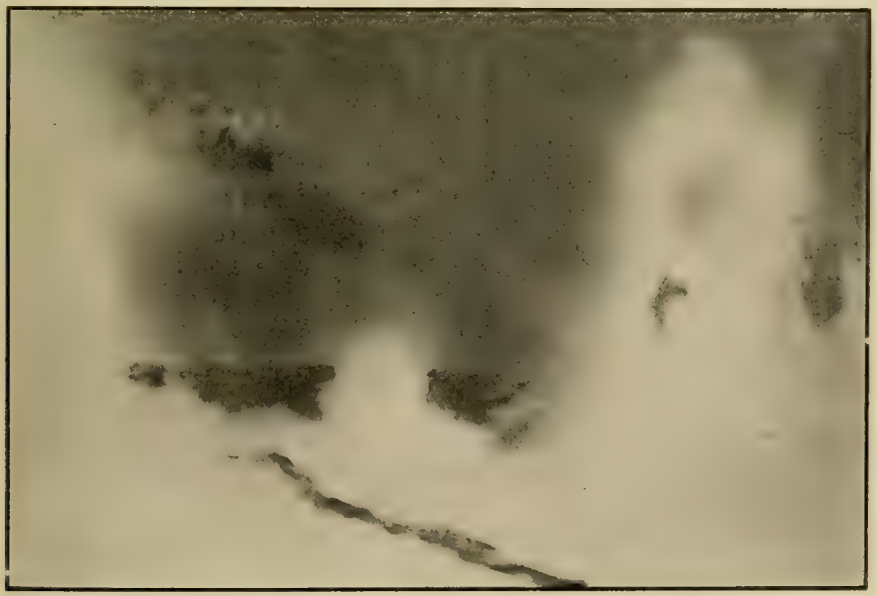


There is no doubt as to the efficiency of the work done on the glass side of the negative, no matter what coating is used. Such work can be made very helpful in equalizing the distribution of light and shade in the printing of landscapes. In the hands of the expert it becomes a very easy matter to enhance the pictorial effect of a print by the proper distribution of high-lights and shadows. By those who are artistically inclined, and who are fortunate enough to possess the ability, cloud effects can be introduced, objectionable features subdued, in fact, feeling can be expressed by variations of light and shade that do not exist in the negative itself. It becomes possible for even the tyro to improve his

FROM ANOTHER IMPROVED NEGATIVE—Produced as described, the illustration below shows work done on the glass side of the negative. Notice the darker foreground, the pathway introduced, the lighter distance and added cloud formation

negative in this way, the degree of success depending upon the amount of skill applied.

The two modified prints reproduced herewith show the improvement that is easily achieved by following the plan suggested. The first one is the result of almost my first effort in that direction, made several years ago. As skill and experience is gained in the work, endless possibilities of improving the printing quality of one's negatives will suggest themselves. The actual work



Showing work done on glass side of negative before making print reproduced above

of laying on the pencil lead or crayon dust must be left to the taste and skill of the worker, my assurance being that one will find great possibilities, even within the power of his inexperienced hand. Any part or the whole of the matt varnish, with its adhering lead or crayon work, if any, can be removed at once, should it be so desired. All that is necessary being a little alcohol on a tuft of cotton.

Always Carry Your Camera

By Louis R. Murray

With Illustrations by the Author

AN AUTUMN CARPETING

SCARCELY ever am I without my Kodak, despite the fact that I cover the same ground each day in following my occupation, that of letter carrier; and my route is not a rural one, where the seasonal changes are more pronounced and the ground covered more extensive. I find, however, that my work affords, as no doubt does many other out-door occupations, endless opportunities for making exposures. And should you be an indoor worker, have you not yearned for your camera on some particular stroll or trip when, to your way of thinking, just the very best picture-making material presented itself? That is why I almost invariably carry either my vest pocket or my 3-A kodak. One might think that after covering the same ground daily for a number of years, there would remain very little worth while, but such is not the case. If one does fail, after a time, to find interesting subjects, it is because he has grown familiar with his surroundings and overlooks the possibilities that are presented.

This is proven by my own experience with a certain little stretch of landscape material, about a half mile long, through which flows a beautiful creek, a tributary of the St. Lawrence. At this place, about three miles from my home city, I have spent many a holiday; every season of the year finding me there with my camera, and there I have secured about three-fourths of my total collection of landscape negatives.

On my daily rounds I frequently expose a film on a bit here or a scene there, little things that are more or less pleasing and sometimes really worth

while. "It Snowed Last Night" is an example in point. I pass this spot twice daily and ordinarily it presents no pictorial possibilities, as one can easily imagine. But one crisp morning after the grocer's sleigh had made its rounds through the night's fall of snow, I found a pleasant line arrangement that the driver of the vehicle had unconsciously provided, and a print from the negative won second prize at a certain State fair to which it was sent. Another example is "A Marine

"IT SNOWED LAST NIGHT"

Silhouette" that was awarded a prize in the December *Camera*. This is simply an ordinary harbor scene that I took one afternoon near the end of my daily route. Other examples could be given of negatives that have been made in much the same way, yet they produced prints that have won prizes and received recognition in exhibitions and in the magazines.

While the major portion of the prints that result from my exposures are hardly more than records, they all have some element of interest, and this interest increases as the scenes change or pass away with the fleeting years. I frequently have demands for prints that record such changes, generally in connection with a print showing the present aspect of the scene. In addition, I often find quite surprising picture possibilities lurking in some square inch or larger part of the negative, possibilities that require only the simplest form of enlarging apparatus to make a print of presentable size.

And how acceptable are these prints as a welcome variation from the ordinary view of the city hall, the post office, and the like that are offered as local views in post card form. My friends like them much better, and their friends, to whom they are sent, voice the same approval. As scenes from their home town, they are much more likely to find favor in the eyes of former

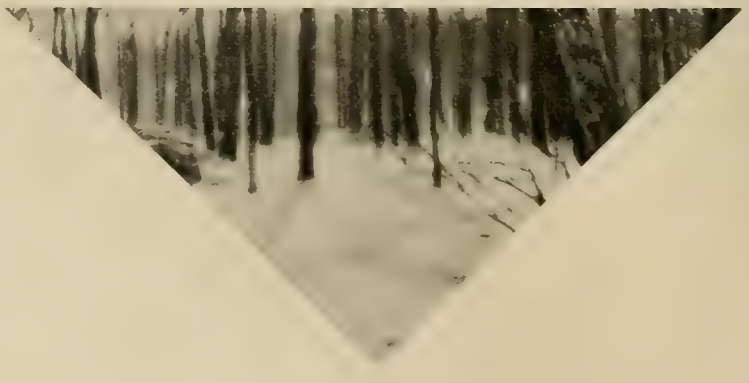
IN THE ADIRONDACK FOOTHILLS

THE HOME OF THE DEER

residents or other absent ones than the usual view of "Main Street Looking South". Best of all is the pleasure and satisfaction such pictures give to one's soldier boy friends "over there". And do not imagine that the present situation removes the necessity of such consideration, but to the contrary. Letters and pictures are needed more than ever to drive away the monotony, the "blues", since intense excitement is no longer a part of a soldier's life.

Some of these "homey" prints of mine have elicited two or three pages of fond recollection from the friends to whom they were sent; and the small cost of preparation and sending is repaid tenfold in the joy of reading the appreciative letters that come in return. One such friend who was doing Uncle Sam's bidding in France, wrote me that he recalled spending several perspiring hours under a certain tree in one of the pictures, trying to persuade his motorcycle to proceed as it should; and now, what would he not give to spend as many more under similar circumstances. Three days later he fell, the victim of a Hun bullet; and I, mourning his loss, have the inward consolation that my small effort may have lightened the burden of his sacrifice.

No good or lovely thing exists in this world without its correspondent darkness; and the universe presents itself continually to mankind under the stern aspect of warning, or of choice, the good and the evil set on the right hand and the left.—RUSKIN.



The Making of a New Negative

By Charles A. Harris

With Illustrations by the Author

In the March, 1918, issue, there was an interesting and informative article on the subject of making enlarged negatives, and the camerist who has advanced far enough to undertake the work should profit thereby. At the end the author calls attention to the possibilities afforded by the process for improving the quality of poor originals, and it is to this phase of the work that I wish to add my own approval and a few suggestions that may prove of value to others. We read of various chemical means of "doctoring" or improving certain negatives that do not fulfil the requirements for producing acceptable prints, all of them involving some change in the silver image that invites a doubt as to the permanency of the results. Several of my own negatives, intensified by the usual mercuric process, have, in the course of the past five or six years, mysteriously developed quite large, round spots that ruin them for anything other than junk. Others, I find, have similar experience; their troubles taking somewhat different forms as the means employed varied, but all resulting in no little distrust of any and all chemical means of improving the printing quality of a negative.

On the other hand, the making of a new negative offers a promising field for effort, inasmuch as the improvement is effected through the very natural process of exposure and development, varying these according to the results required. Additional control over results can be secured by intensifying or reducing the intermediate or positive plate; and, as so doing does not endanger the original or detract from the permanency of the new negative, local modifications can be made with a disregard of consequences as above suggested.

Suppose, for example, that a certain negative of great personal value has such a degree of contrast that the making of a good print is practically impossible. It is not desirable to tamper with the original, so a positive is made and this latter reduced by means of the ammonium persulphate reducer. The denser parts, the shadows in the positive, are reduced, permitting the introduction of more printable detail, with a decreased amount of contrast, in the new negative to be made from it. Of course, no detail has really been added, but the new negative has a better balance between the high-lights and the shadows, and a suitable printing paper will record the detail missing in the first instance.

The article in question also calls attention to the fact that in making these enlarged or duplicate negatives, retouching may be done entirely with the pencil, without recourse to the knife; no small advantage to those who find difficulty in manipulating the latter tool. And in this connection I need hardly point out the value of the method to the one who is disconsolate over a broken or cracked negative. One of the hardest things to do well is to remove, by re-

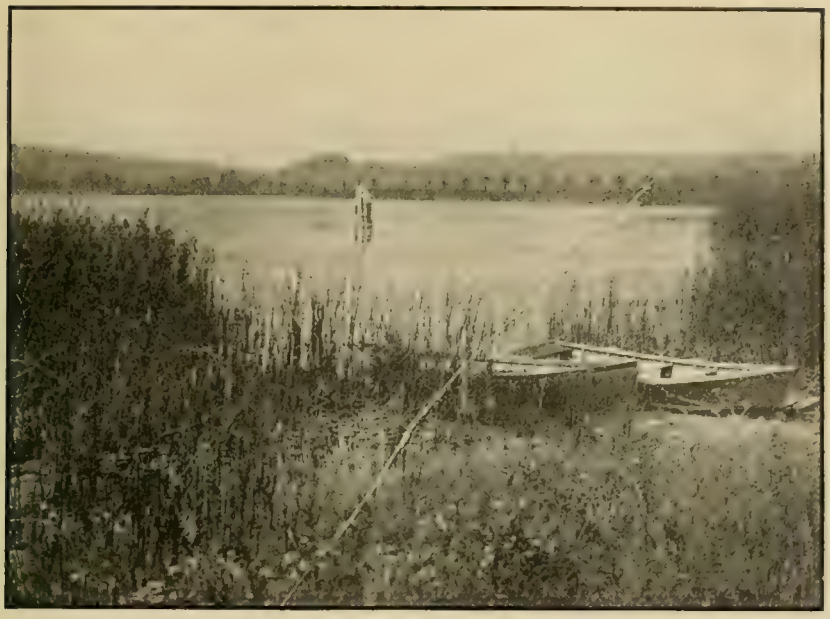
touching methods, the strongly indicated and practically straight line that results from a cracked negative, or even one that is merely scratched.

Dealing with such difficulties, the work is still further simplified by using a bromide enlargement,—one of about two diameters is sufficient, as the intermediate, rather than the glass positive usually recommended. While other matt surface papers may be just as good, I have used, mainly because most handy, Eastman's Matte-Enamel, which has a fine grain surface upon which a knife can be used both safely and effectively. The regular etching knife is perhaps the best tool to use, but I find an ordinary pocket knife answers my purpose, possibly because I am more used to it. In either case the edge must be very sharp; in fact, in the same prime condition as when employed upon the film of a negative. The scraping must be done very gently, watching closely to see that the knife does not cut through the coating material and expose the paper beneath. Properly used, the edge of the blade scrapes away fine, powdery particles, and thus lightens the tone of the portion worked upon, substantially the same as when working upon a negative, only the work is easier and the outline more readily followed. Light portions are darkened by applying spotting color with a brush.

Referring to the example reproduced herewith, the sharp edges that characterize the blemish shown, were first softened or broken where they came black in the enlargement, by means of the knife. To the parts of the line showing white, color was then applied. The color must, in one respect, be used like the knife, sparingly. I take a brushful of ivory black water color and spread it, in patches, on a sheet of glass. I then dilute each succeeding spot with an increased amount of water so that I have available a depth of color to match any portion of the print. The most care was required where the defect was followed across the lake; the lighter tones there being filled in with a hard pencil, sharpened to a long, fine point as for retouching. Too much pencil work should be avoided because it does not always copy well, through its tendency to be shiney. Working on the enlargement we must match the color value, while on a negative we are concerned only with the degree of density. One method of securing the merest trace of color is to just moisten the practically clean brush between the lips. There must, of course, be some color in the brush, but so little that used in any other way it would serve no good purpose.

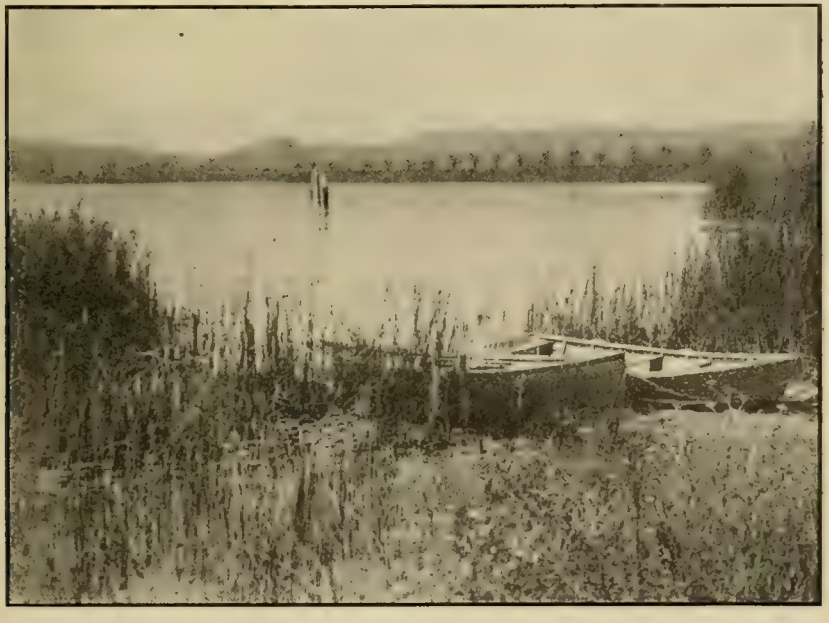
Below the boats in the picture it was only necessary to darken the white line in the print and later retouch a little on the final negative. The additional tules introduced thereby, help to obliterate the line; in fact, the more this line could be worked broadly into the adjoining areas, the better the result. These lines, because of their regularity, are somewhat persistent, even after being quite carefully worked over. The eye finds and follows them where it would not perceive a like amount of work done upon irregular patches.

From this worked-up enlargement a copy was made in the form of a final negative of the desired size. The novice will, at first, find that he has neglected to do a little knife work on the print, or a little pencil or brush work that might have saved much of the retouching necessary on the final negative. Another point sometimes overlooked is the necessity of having good blacks



and clear whites in the enlargement so that it will copy well. Any yellowing of the whites or blue caste to the blacks will prevent the securing of a good negative. It will also be found that this negative should be developed a little further than is customary with one's regular work.

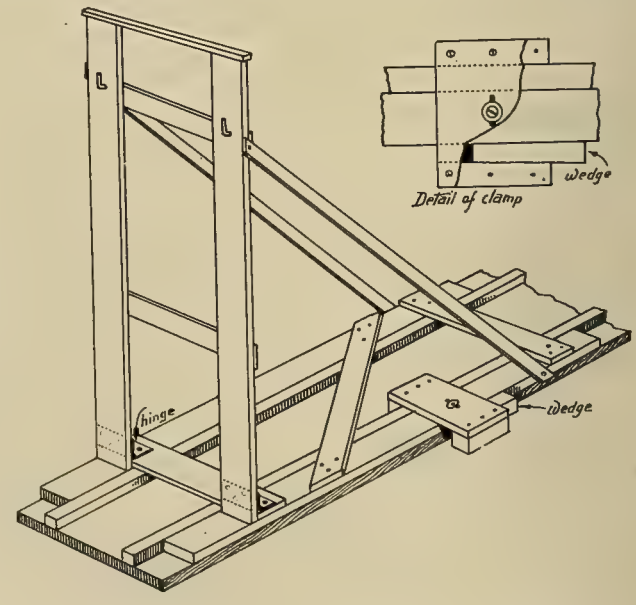
Incidentally, it might be pointed out that the skill acquired by a little practice along this line of work upon the print, will be found quite useful in improving large prints made in the ordinary course. We are inclined to limit such work to the spotting out of small defects, but there is no good reason why



it should not extend further, particularly in the case of prints to be hung and viewed from a distance. White areas sometimes show unpleasantly through the foliage of trees, and these can be lowered in tone to advantage. Distant masses of trees or hills are sometimes much too dark, when a little softening with the knife will cause them to loose their prominence and harmonize with their more removed position, as to tone. For this purpose the knife is the best tool, as it leaves the surface in a better condition than does the abrasive powder sometimes recommended.

In conclusion, a few suggestions upon the allied topic of copying might be timely. One can, of course, copy a print in the time-honored fashion by tacking it up in a good light and bringing the camera to bear upon it, securing the desired size by repeatedly shifting the tripod, with the accompanying adjustments and manipulations that are time-consuming and conducive to uncertain results. But experience has convinced me that, even for the one who has but little copying to do, it is better to dispense with the tripod and arrange an easel, sliding along one end of a board support that carries the camera fixed to its other extremity. Drop into the work-room of a newspaper or professional worker and you will find his more elaborate equipment is constructed on this same principle.

My own paraphernalia starts with a pine board a little over six feet long and a trifle less than twelve inches wide. Lengthwise upon this are nailed two parallel guide strips, leaving one and three-fourths inches between their own outer edges and the respective outer edges of the board, these strips being one inch wide and a little more than half as thick. Two or three cross strips nailed to the under side of the board will prevent warping. The easel support is a frame consisting of two triangular sides, each formed of horizontal and upright strips with connecting brace. These, united by means of cross cleats, are so spaced that the inner edges of the base strips slide smoothly in contact with the outer edges of the guide strips, utilizing the full width of the board. The uprights, which must be at right angles to the base, are provided with hooks upon which the copy board or easel proper is hung. These four main pieces, cut from dressed inch lumber, are one and three-fourths inches wide and three feet long. The other parts are of lighter material, as shown in the sketch. This



THE GROTTO OF THE MERMAID

THE SONG OF THE SEA

sketch, by the way, shows the easel support slid forward to the camera end of the board. Setting the hinged uprights back a few inches from the ends of the base pieces, counteracts any tendency it may have to tip forward. As the apparatus was originally constructed for enlarging, the easel frame was made large enough so that when used on a table the board holding the paper would come at a convenient height for one standing. With the uprights hinged as shown, and the two side braces put on with screws, the latter can be removed and the whole made very compact for storage when not in use.

The camera occupies a fixed position on the other end of the board. A small box, inverted, is utilized as a support, bringing the lens opposite the center of the easel board when the latter is lowered as far as possible. A hole in the bottom of the inverted box allows the use of the tripod screw in attaching the camera, and cutting away a part of the side permits access thereto. The box is fixed permanently in place, the desired size of image or focal distance being secured by moving the easel only. A small washer, obtainable at any hardware store, just large enough to admit the threaded part of the tripod screw, can be fastened to the under side of the hole by means of a couple of brads if two nicks are filed in its circumference. This will engage the shoulder of the screw, just as does the under side of the tripod top; and, if the hole in the box is made small enough to bind a little, the screw will not drop out when the camera is disengaged.

Equipped with something of this kind, one is ready for work in a very few minutes and can proceed with his copying without unnecessary loss of time or patience. The best place for doing the work, or for photographing any small object requiring an even illumination, is just inside a north window with the camera end of the board extending outside where the operator does the focusing and makes the exposure. Other windows can be used when the light is diffused as on cloudy days. This gives an even and direct light that is hard to

duplicate when working entirely inside the room. Using the equipment for enlarging, and of course under different conditions, a device for fastening the easel firmly to the board at the focal plane will be found an advantage, as one is liable to move the easel when attaching the paper. Such a device is shown in the sketch, attached to the nearest base strip with a screw, the latter passing through a slotted hole that allows a little play to facilitate operation. The wedge and its complimentary block on the under side of the device should be tapered only slightly, and it will be found that a slight tap with anything handy will cause it to hold quite firmly.

The easel frame, used alone, with an additional strip several feet long tacked across the top, serves admirably as a support for a draped background in making still life studies on a table. Turned to one side at the edge of the table, it can be used to support a reflecting sheet which may extend to the floor, when a side lighting is to be arranged. Fitted with a board in which a set of kits occupy an opening in the center, one is provided with an excellent arrangement for making lantern slides from larger negatives, by copying in the camera. Still other uses for a part or all of the apparatus will no doubt suggest themselves to the worker.

Mention might also be made of a practical arrangement, easily managed, whereby vertical work can be done with the same apparatus. All that is required is another tripod screw hole in the rear end of the inverted box that supports the camera normally, assuming that this rear end is flush with its end of the six-foot board. By attaching the camera in this new position, with that end of the board extending out over the edge of a table and the other end weighted down with some books or the like, one is prepared to photograph small objects, flowers or the like, lying either on a properly selected background or a sheet of glass supported just above it. A slot instead of a hole for the screw, will allow the camera to be raised or lowered through a small distance, and placing empty boxes under the weighted end of the board will further increase the range. This vertical arrangement will be found a much more satisfactory way of photographing certain subjects that are more easily arranged on a horizontal support.

The method described has several advantages over the customary one of employing a tilting top in connection with the ordinary tripod. The space directly under the lens is open and free on at least three sides, permitting of easier adjustment of subject and background. There can be no shadows from tripod legs to give trouble; and the board, as compared with a tripod, supplies a very firm and rigid support for the camera. The table can be moved about to get the most suitable lighting; and a white cardboard reflector, used to light up the shadow side of the subject, is easily shifted about to secure the desired effect. Adjusting the stop and shutter, with the camera in this vertical position, was found to be somewhat of a gymnastic exercise until I hit upon the plan of using a small mirror, the shutter being set by means of the reflected image.

I have wandered somewhat from my original topic, I must admit. But there is really little more to be said thereon, other than to suggest that some such measures as those outlined be taken when confronted with similar conditions or difficulties.

Flower Photography

By Elliott S. Blakely

With Illustrations by the Author

In photographing flowers, the first essential is the proper kind of camera; second, the proper plate, and third and most important, an understanding of the habits of flowers and how to properly care for and handle them.

So we will consider the camera first, which should be preferably a long bellows view, with rising, falling, and sliding front. The back should be easily reversible and with both vertical and side swing. The size should be preferably 5x7 or 6½x8½; these sizes are sufficiently large to take a life-size portrait of a spray of most varieties, and in the case of "still life studies" these sizes are easily enlarged to "wall size" without serious loss of quality; besides these sizes are about as large as one cares to buy plates for, and are about as large as one cares to carry or handle.

It is presumed that the flower photographer already knows enough about photography to expose a plate correctly and to properly develop it. It is not safe to trust the developing of flower negatives to professional finishers.

The lens should be at least of as long focus as the diagonal of the plate used,

POND LILIES, YELLOW CENTERS—August, 11 a. m., bright, indoors, f-32, Instantaneous Iso plate, 10 minutes exposure

and the bellows long enough to be fully capable of twice the extension of the lens focus.

As to the plate: The ordinary fast plate used for portrait work in studios will do for white and pink flowers, nicely, and by giving a long enough exposure in a moderately flat lighting, it will do for red ones. But when yellow or blue flowers are attempted, the ordinary fast plate falls down hard, for the yellow would photograph as black or near it, while the blues would appear as white ones, much the same as the white sky in the average landscape photograph, known as a "bald-headed sky." So we must have recourse to "corrected" plates known as orthochromatic or isochromatic, which are yellow sensitive and will render the yellow color nearly as light in tone as white. In addition to using the yellow sensitive plates, some flower photographers use also what are known as color filters. These filters are merely colored glass, usually yellow, which have the effect of changing the blue to green and gives a truer appearance of the blue in the finished photograph. Personally, I have not had recourse to them except when handling very light blue flowers, owing to the fact that the action of the plate is slowed up too much, and the optic quality of the lens is interfered with, so that too small a stop is required in order to get a sharp negative. But when the blues are very light, I use a two or three times filter to bring out the suggestion of blue.

These filters may be bought ready made to fit over the lens or may be home-made by using a couple of fixed out lantern plates and dyeing them with yellow

NASTURTIUMS, RED, ORANGE AND YELLOW—September, 2 p. m., bright, indoors, f-22, Instantaneous Iso plate, 8 minutes exposure

OX-EYES, YELLOW—July, 3 p. m., dull, outdoors in shade, f-16, 1 second exposure

OSWEGO TEA (BEE BALM), DEEP RED—June, 2 p. m., bright, indoors, f-32, Instantaneous Iso plate, 20 minutes exposure

HARD HACK (STEEPLE BUSH), LIGHT PINK—July, 3 p. m., dull, outdoors in shade, S-S Ortho plate, f-16, 1 second exposure

WILD GERANIUM, LIGHT BLUE—June, 10 a. m., dull, f-32, Instantaneous Iso plate, 5 minutes exposure, three times filter

WOOD LILIES, DARK ORANGE—June, 1:30 p. m., bright, indoors, f-32, 20 minutes exposure

dye of good quality. A good dye, one that is permanent, is made by using a nearly saturated solution of picric acid. Two such dyed plates, when dry, are bound, coated sides together, with lantern slide or passe-partout tape, and then attached to the inside of the lens board.

Much more can be accomplished, however, in getting true color values by considering the lighting and making it fit the case in hand; for instance, blue and purple flowers should have a flat shaded light, the subject being well back from the position in which white flowers are taken, while the yellow ones may be photographed in the same light as the white ones, as explained later. Slow Iso plates, being more sensitive to yellow than to blue, will give a good rendering of the blues and purples without the use of a filter, and even when a filter is thought necessary, there will be found very little increase of exposure necessary as compared with the faster plates.

The third and most important requirement in flower photography, as before stated, is a knowledge of the habits of flowers and how to care for and handle them; as without such knowledge, many failures are certain to result, as I well know from expensive experience. Some flowers wilt quickly after being cut, and this especially applies to wild flowers and such cultivated varieties as bloom only for one day; morning glories and poppies being good examples. The trick is to have them in readiness as soon as possible after they have opened out from the bud. And no flowers, either wild or cultivated, should be gathered during the heat of the day, for they are sure to droop; and if by chance they should be coaxed to "come to" one may be sure that they will never look quite the same. My later habit has been to go after the flowers early, so early that the sun has hardly had a chance, and then, by getting them to the workroom quickly they lose very little of their freshness. In any case the flowers should be put in water immediately and the workroom should be cool.

It is just as necessary to have a suitable workroom for arranging the subjects and exposing the plates. The essentials for such a workroom studio are a suitable light, proper temperature and a solid foundation. The light should be easily controllable and reach the subject at an angle of preferably forty-five degrees; this can be arranged by blocking out the lower half of the window and using only the upper part. If one has a north window available, well and good, but if not, the strong sunlight of less favored ones may be easily diffused by using cheesecloth, or by applying a coating of Bon Ami or whiting, with a damp cloth. All other windows in the room must be darkened to avoid conflicting lights.

The temperature must be cool to prevent the blooms from drooping, and any vibration of the floor would spell disaster during the exposing. For these reasons I would recommend the use of a basement, if available, or even a well lighted cellar might be found satisfactory. All visitors should be excluded during the exposure unless they can sit still and keep out of the way. It is safe to say that more failures result from drooping and vibration of the subject during exposure than from any other cause, so any walking around must be strictly taboo, and it follows, for the same reason, that there must not be any draft in the room. The slightest movement of the subject during exposure means a spoiled plate.

The position of the stand or table upon which the subject is arranged and

IRIS VERSICOLOR, BLUE AND PURPLE—June, 9 a. m., bright, indoors, f-22, Instantaneous Iso plate, 15 minutes exposure with three times yellow filter

FLEUR-DE-LIS, PURPLE—June, 3 p. m., bright, indoors, well back, f-32, Slow Iso plate, twenty minutes exposure, no filter

YELLOW CHRYSANTHEMUM—October, 2 p. m., good light, indoors, f-32, Slow Iso plate, 15 minutes exposure

CACTUS DAHLIA, SALMON PINK—September, 3 p. m., bright, indoors, f-32, Slow Iso plate, 20 minutes exposure

posed for photographing should be just back and below the lower half of the window and about six to eight feet away. The subject is arranged so that the light falls on it, as before stated, at an angle of forty-five degrees, and in what may be called a glancing manner, which brings out the finer detail of the petals while still preserving the roundness or form. This fine detail or grain gives the flower photograph a charm impossible for the painter to get with the brush.

A relatively small stop should be used in order to get depth, first focusing on the middle of the subject. When a satisfactory composition has been effected and sharp focus secured about midway of the subject, stop down to f-22 or f-32 according to the depth required.

The exposures will vary according to the subject, light, stop, and plate used; and instead of fractions of a second, minutes may be required, as a reference to the data under the examples reproduced with this article will indicate. If the dark-room is handy, it is well, at first, to develop the plates immediately, so that in case of error the exposure may be made over while the flowers are still in position and in proper condition.

Development should not be carried too far; there should be plenty of detail in the shadows and the lights should not be made too dense. In other words, it should be possible to read black letters on white paper through the darkest part of the plate, or the red light in the dark room should be seen through it at a distance of two or three feet. Such a plate will print well on any kind of paper from printing-out to gum. And a fogged plate will not make a good print on any paper, so care must be taken to avoid stale plates, warm or stale developer, unsafe dark-room light, or leaky plateholders or camera bellows, all productive of fog. For the same reason, development should be carried on at least three or four feet from the red light, as too long an exposure thereto will also produce fog. It is also well to cover the developing tray with a dark card during development.

The perfectly exposed plate, properly developed, will be full of detail, with the darkest shadows clear glass and the highest lights transparent.

I feel that this article would not be complete without some remarks on composition; and while not an artist, I can offer a few suggestions that are worth bearing in mind. Always strive for unity in the composition, and to that end avoid more than one color, or more than one variety of bloom, in the one picture. Simplicity is the keystone of the compositional arch. One, three or five blooms arrange more pleasingly than many; and, when more than one kind of flower are introduced into the composition, the result is apt to be divided interest, and a division of interest is fatal to the success of a picture. The principal bloom should never be exactly in the center of the picture space, but preferably a little above and to the left of it.

In the case of "still life" studies, the vase or other container should not rival, in importance, the blooms, unless it is intended that it be given first place and the flowers made secondary. The container should never be partly shown, as the neck only of a vase.

As an aid in arranging the composition, use a printing frame the size of the plate and look through it at the subject, over the edge of the camera. This removes much of the necessity of moving around either the camera of the subject;

and, by the way, the subject gets tired of too much moving around much as people do, and when this happens they simply refuse to pose at all. In photographing single blooms or groups of but two or three, a bottle makes a better container than anything else. The space remaining between the neck of the bottle and the stems can be filled up with damp paper to hold the flowers in place.

It is best for the beginner in flower photography to attempt only white blooms at first. It is so much easier to get the right ideas of lighting and modelling, the white flowers usually make more pleasing pictures, and it is much easier to show the transparency and fine texture.

There was, before the war, a wide variety of papers to choose from in making the final print. Many of these are not now on the market and probably will not be for some time. However, a good presentation of white flowers is made on the ordinary gaslight papers, suiting the grade of contrast to the negative. A smooth surface paper is best in order to preserve the beauty of detail. Impressionism has no place in flower photography, and nothing should be left to the imagination of the beholder. So, strive for as perfect a rendition of the negative as possible, a flower portrait than any one with a knowledge of flowers could readily identify as being the particular flower represented.

His Photograph

By Richard J. Grace

We are always surrounded by a happy group of youngsters, and keep young in their company and activities. They are always welcome and always interesting, but just now they are a saddened and quiet group, for Ernest is gone. It is very hard for them to realize that they are not to see him pass the house in running costume, that he will not come breathlessly in announcing his possession of theatre tickets or anxious to regale us with the latest juvenile news. He has gone forever and the only souvenir, the only material remembrance we have of him, is a "vest pocket" snapshot, a full length picture, taken in a brilliant light at the Beach cottage. He is in a characteristically boyish attitude, partly conscious, partly nonchalant, his hair windblown and with his hands in his pockets. It is a picture of Ernest as we knew him, superficially.

We regret that we have not a better one, and we realize now that it is too late, that we always err in photographing a friend at too great a distance. It is probably due to distrust of our skill in using the focusing scale. We never stand off ten feet to talk to a guest; we stand much closer where we can see the play of the animated features, the twinkle of the merry eyes, and the ever-changing expression of the mouth. We fail to realize that by using a portrait attachment and including the head and shoulders only we can avoid the optical distortion that makes many short-focus lens portraits ludicrous. The lack of depth of focus gives a pleasant roundness to the picture, and the background is really relegated to its proper position as an unobtrusive feature.

Thoroughly a boy, you could not have dragged him into a studio; and if, by some chance or force, you did get him to face a camera with the intent to make a portrait, his boyish consciousness would have defeated your design.

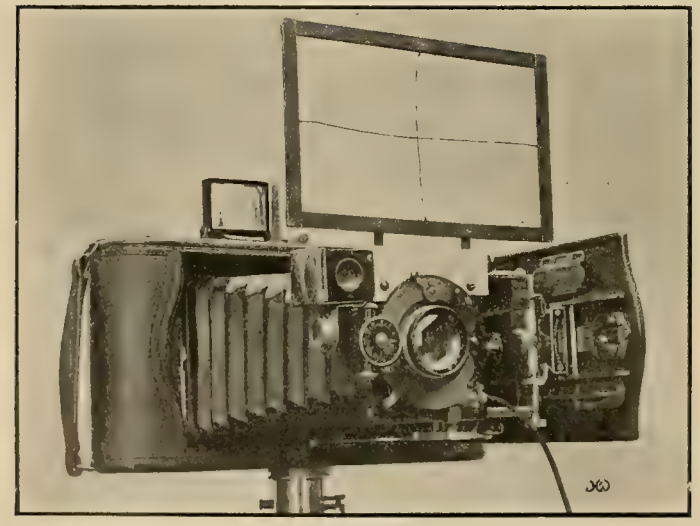
A close-up snapshot, unpremeditated, would have shown him as we knew him. In spite of his eighteen years, he was still boy enough to play with twenty-two-month-old Anita, who called all boys "Ernie" after her hero. Such a picture would have shown the dreamy eyes of a boy, the rebellious hair, the whimsical mouth, and the smooth chin which gave promise of a strong manhood.

That little film has become priceless and appreciated as no other piece of celluloid ever has been. It has been removed from the file of commonplace pictures, and it will be enlarged for his parents. But there is too much in it that is not Ernest, and the face that we loved to watch, as we teased him or as we listened to his tale of some boyish adventure, occupies such a pitiful little portion of the whole.

The Wire-Frame Finder

By J. H. Wilton

Coming into possession of one of the first made 3A Kodaks, and using it extensively, I acquired a growing dislike for the diminutive finder with which it was equipped. A direct vision finder was installed but even that seemed unsatisfactory. In the August, 1914, CAMERA CRAFT, Edwin E. Le Bas described a wire frame view finder that seemed to have so much to recommend it that a like one was constructed and at once given service on a trip to the Yosemite Valley. Any one who has tried to picture the scenes in that wonderful valley by the aid of an ordinary brilliant finder will, I am quite sure, be in a position to appreciate a wire-frame finder. This particular form had two disadvantages: the projecting points that fitted behind the shutter made carrying difficult, and the lightness of the wire invited a loss of rectangularity. To remedy these defects, a new one was made of spring steel, one-sixteenth of an inch thick and five-sixteenths wide, as shown.



As this frame encloses a parallelogram exactly 3¼x5½, its outside dimensions are five-eights of an inch larger each way, making it as easy for the pocket as an ordinary business envelope. Were I making another I would try to get the spring steel half the thickness and nearly half the width. The cross wires were put on by a jeweler friend who failed to get them as taut as he should, although they serve quite well as a means of leveling up. Instead of the projecting wires of the original finder, I riveted two pins, one-eighth of an inch in diameter and about an inch long, to one of the long sides, in such a way that they turned parallel and lay flat against the side of the frame when not in use, but projected downward when the finder was to be attached to the lens board. To provide attachment, a piece of aluminum, carrying two holes for the reception of the pins, was fastened to the lens board by means of two small machine screws with nuts. In one end of this block was tapped a hole for a larger screw, so that by screwing the latter in it would engage the side of one of the pins and hold the finder securely when it was desired to carry the kodak about with the frame in place. A piece of hard wood can be substituted for the aluminum if the latter is not available.

The sight is made as suggested in Mr. Le Bas' article: A piece of sheet brass, about 1x2 inches, serves as the base to be attached to the center of the camera side, the top in the illustration, by two small screws. Across the center of its upper side is soldered a piece of small tubing, and this last is fitted with a slightly longer piece of brass rod that will just turn nicely inside. The end of this rod towards the lens is slightly riveted so that it will not pull out, and to the other or rear end is soldered one end of a strip of sheet brass, a finger-shaped piece about two inches long, to serve as the sight. This is shown in the illustration, just between the two finders, turned upward for use. When not being used it turns downward and rests along the top of the camera, the piece of rod to which its lower end is soldered turning within the brass tubing. But before using this sight it must be trimmed or shortened until its upper end is the same distance above the center of the film as the cross in the wires or center of the finder is above the center of the lens, the measurements being made accurately.

To use this finder, one simply places the top of the sight close to one eye and then looks around the inner edge of the frame to see what will be included in the view as recorded on the film. The direct view finder, shown in the illustration, is quite useful for "sizing up" a view, the reduced image giving one a good general idea of the resultant negative. But the frame finder is the one that gives me the most dependable results. My work of photographing machinery was previously done with a 5x7 camera in order to get the large images required, but with the frame finder I can use the kodak, being able to place the image within a quarter of an inch of the edge without risk. This type of finder allows one to take full advantage of the rising and sliding front, a utility that is of little real use with the ordinary finder.

From my experience, any one employing a kodak for serious work, work demanding a knowledge of just what is being included in the negative, will find the time spent in constructing such a finder as I have described time most profitably expended.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

A COLORING TIP: Sometimes, in trying to apply color to a print, greasy spots are encountered, spots that do not seem to take the color. A little ordinary chalk rubbed on gently with a soft cloth and then gently rubbed off, will remove the difficulty and in no way damage the surface.—F. G. H., New York.

A GOOD RETOUCHING DOPE: The best retouching dope that I have ever used is one that I got from a demonstrator about five years ago. It is made as follows:

Red rosin	3 ounces
Turpentine	6 ounces
Sulphuric ether	2 ounces
Beeswax	30 grains

The rosin is dissolved in the turpentine by means of gentle heat and to this is added the beeswax previously dissolved in the ether. As both these solvents evaporate quite rapidly, the dope should be kept tightly corked when not in use.—T. G. B., Nevada.

A GROUNDGLASS SUBSTITUTE: With the addition of a little prussian blue, this is excellent for holding back shadows in printing.

Sulphuric ether	10 ounces
Touline or tulon	5 ounces
Gum sandarac	1 ounce
Gum mastic	¼ ounce

This is flowed on the glass side of the negative in the usual manner. If too thick, a little more ether can be added.—T. G. B., Nevada.

A FLASHLIGHT PORTRAIT HINT: It is fully conceded that the flashlight portrait, properly made, gives beautiful detail and texture, but we sometimes want the effect secured, by daylight, by slightly under-exposing and then developing a little short of full density. The method I follow, while perhaps not entirely new, may interest some other workers who may find it as useful as I have done. I simply place a screen of silk marquisette or bolting cloth a few inches in front of the lens, after focusing and before making the exposure. While there is no apparent record of the screen on the negative, there is a softening of the result that is most pleasing; in fact, the plan was evolved in order to avoid, or at least minimize, the necessity of retouching, at which last I am not particularly skillful. Using the screen in front of the lens also seems to lessen the necessity of having the flash either at some distance or else behind a diffusing screen of its own, both somewhat difficult when working in cramped quarters or where the ceiling is low.—C. E. McK., Illinois.

CAMERA CRAFT
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Our Frontispiece This Month

"Sunshine" is our own selection from a number of fine examples of the work of Nancy Ford Cones that have been placed at our disposal, with the author's consent, and to say that making the selection was a difficult matter will give our readers some idea of the good quality of her pictorial productions. We have, however, secured the promise of an early article dealing with Mrs. Cones and her work, and this will enable us to give our readers a still more intimate, as well as comprehensive, survey of the pictorial possibilities that an earnest, as well as artistic worker, finds at her disposal in the almost rural surroundings of her own home.

Sixth Pittsburgh Salon

We hoped, in this issue, to be able to show our readers a few of the pictures by our Pacific Coast workers, accepted by the Pittsburgh Salon just closed; in fact, several prints have already been secured for reproduction. But, hearing from Mr. Edwards, our Sacramento pictorialist, that he had a few comments upon the exhibition, in course of preparation for our pages, we have thought best to hold these pictures over in order that they might appear in connection with what Mr. Edwards, who was one of the judges, may have to say for the benefit of our readers, and our Coast exhibitors in particular. The Pacific Coast was unusually well represented, Los Angeles in particular, and with one of our Coast pictorialists on the jury for the first time in the history of such exhibitions, no little interest attaches to this last salon.

Supplementing Mr. Steadman's Article Last Month

One of our Los Angeles readers, an old hand at bromide enlarging, writes that Mr. Steadman failed to give all the good reasons for the making of an actual exposure as against any separate method of ascertaining the correct time of exposure. Any practical printer, he says, will have noticed the gradual weakening of a developing solution hour by hour, due to use and exposure to the air; in fact, experienced workers make allowance for this even when risking a guess at the exposure required. Where the correct exposure is desired, the only way is to do as Mr. Steadman advises and make an actual test on a small piece of the paper developed in the very solution to be used at the time for developing the print. Our correspondent also calls attention to another important point, namely, the tendency of most workers to form a wrong conclusion from an over or under exposed trial strip, rather than make a second trial, the inclination being to vary the exposure too slightly to take care of the variation indicated. At least, one almost invariably does this until considerable experience has taught him better. For example, with a test exposure of twenty seconds showing quite evident underexposure, the worker would be inclined to increase the time to twenty-five sec-

onds, perhaps to thirty seconds or an increase of fifty per cent; while, in reality, the exposure required to be doubled. It is really much safer to repeat the test until the correct exposure is actually found, as one will learn by checking the results so secured against what he thought would be right, judging from the appearance of the first incorrect trial.

Canadian National Exhibition

The Toronto Camera Club will hold its Twenty-Eighth Annual Exhibition at the Canadian National Exhibition, Toronto, August twenty-fifth to September sixth next. The largest room in the Graphic Arts Building has been placed at the disposal of the Club and it is intended that the exhibition shall be a truly international one, the Club being affiliated with the Royal Photographic Society of Great Britain; and, through its previously held exhibitions, close in touch with many of the best workers throughout the world. Entry blanks, carrying "conditions of entry," may be obtained from A. S. Goss, Secretary Exhibition Committee, Toronto Camera Club, 2 Gould Street, Toronto, Canada. We can assure our readers that this exhibition is one that is really worth their while and those pictorially inclined should not overlook the opportunity that it presents. As in the past, the committee of selection will be such that admittance can be considered as an honor and as one quite justly bestowed. In addition, the care and attention the Club gives the work entrusted to its hands is exceptional and will no doubt be continued as heretofore.

When Are Pictures Obscene?

A question that is constantly put to us is one demanding some definite information as to what constitutes, in the eyes of the law, obscenity in a picture, but it is a question that is impossible of answer. About the best that we can do, in the way of enlightenment, is to quote from an article on the subject by James F. Morton, Jr., published some years ago in *Case and Comment,* as follows: "Everybody can readily learn exactly what is meant by burglary or forgery as defined in our penal statutes; but nobody can tell just what a given judge or jury will say to a particular writing or picture accused of being obscene. The vague and meaningless definition of Reg. v. Hicklin, L. R. 3 Q. B. 360, imports obscenity into any matter the tendency of which is 'to deprave and corrupt those whose minds are open to such immoral influences, and into whose hands a publication of this sort may fall.' Under this criterion, the abnormal mind is made the standard, and the normal tendency completely ignored. No such loose doctrine is held in any other branch of law, nor would it be tolerated elsewhere. Imagine criminal libel against the person being defined as 'language which tends to create a suspicion or dislike of the individual on the part of those whose minds are afflicted with prejudice against him, and into whose hands a publication of this sort may fall'! Under such a standard, the freedom of the press would be in much worse situation than in Russia. Yet the cases are precisely parallel; and the docile and sheep-like manner in which our American courts have almost unanimously followed the preposterous doctrine of Reg. v. Hicklin is one of the inexplicable facts in the history of jurisprudence."

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

A New Method of Intensifying Carbon Lantern Slides and Transparencies

In normal times the approach of the lantern season means to most of us a repeat order for our usual brand of lantern plates without further consideration, but war conditions, as was recently pointed out, I think in the editorial columns of this paper, may, at the moment, induce many amateur slide makers to try other processes than those involving the use of dry plates. Amongst these carbon should be a prime favorite. Indeed, the paragraph referred to came to me very opportunely, for it served to remind me of a roll of platinum black carbon tissue which I had purchased ten years ago and never used, and which I immediately decided to bring into requisition.

I recognized, however, that it was inadvisable to attempt direct carbon work with negatives of a character suitable only for contact printing on gaslight paper, and many of mine required the vigorous brand of that useful commodity in order to get a good print from them. I decided, therefore, to use ozobrome, and make my slides from gaslight prints. The resulting slides by this process are, of course, carbon slides as much as if made by direct printing.

It took me some time to get into the working of the platinum black tissue, which was not specially made for the ozobrome process; but when I had once succeeded, I was able to produce slide after slide, beautiful in detail and correct in gradation. But from many of my negatives I could not get that depth in the shadows, combined with brilliance in the high lights, which is desirable in a lantern slide.

With a bromide of silver lantern plate I should have put the slides right at once by intensification; but with carbon slides there appeared to be no practical method available.

On reference to text books I found the only thing recommended was potassium permanganate, which, whilst it stains the image a pleasing brown, certainly does not add much to its density.

It then occurred to me that in a carbon slide, the support being practically almost bare glass, and the quantity of gelatine strictly proportionate to the image throughout, it ought to be possible to intensify by simply impregnating the gelatine with some chemical in solution which the gelatine would absorb, and then, after rinsing off surface solution, following with a bath of some other chemical in solution which, reacting with the first, would cause the deposit of a precipitate in the image. The amount of chemical absorbed by the substratum, provided this was simply the usual substratum employed, would be so slight as not to affect the brilliance of the whole.

A few rough experiments soon confirmed my supposition, and I obtained results which surpassed anything I had anticipated.

I took a solution of about two grains of green vitriol, iron sulphate, in one ounce of water, and placed in this a dry slide which had been previously put through an alum bath in the usual way to fix the gelatine. In about two minutes the slide was taken out of the iron solution, rinsed in a basin of water for from two to three seconds, and placed in a freshly prepared solution of barium sulphide. In this it was allowed to remain until all action had stopped, the time depending on the strength of the sulphide solution. The surface was gone over with a tuft of cotton wool, and the slide washed. The result was a great increase in the strength of the slide, which showed strong and rich shadows, combined with brilliant high lights, and an extremely good black similar to that of a photogravure.

It is quite possible, however, that the intensification may be greater than needed unless the iron bath be weaker than stated. Should this over-intensification occur, it is simply necessary to treat the slide, after washing out the sulphide solution, with very

dilute hydrochloric acid, of which five minims of strong acid to the ounce of water should be ample. As an alternative we may use a few grains of oxalic acid to the ounce of water. A slight rub over the surface of the slide with either of these acid solutions in a still more dilute state will act as a clearing bath; whilst if allowed to act fully, either acid will quickly remove the whole of the added density, and restore the slide absolutely to its original condition.

For my next experiment I took about two grains of sugar of lead (lead acetate) to the ounce of water, and proceeded exactly the same as with the iron solution. The first effect with lead is a precipitation of lead sulphate in the image due to the presence of alum in the gelatine. This is immaterial, but serves to fix the lead. The slide is then rinsed and placed in the sulphide bath, in which it gradually changes to a rich warm brown, and gains a degree of intensification depending on the strength of the lead acetate solution, and the amount of lead absorbed. The intensification with lead can be removed, either partially or completely, by means of acidified permanganate applied after the sulphide solution has been washed out. This, of course, must not be so strong as one would use for reducing a negative. A start should be made with a very dilute solution, and the strength should not be increased more than necessary, in order to avoid risk of injury to the carbon image. After the permanganate there will remain a residue of white lead sulphate which is easily got rid of by means of hypo.

In regard to silver I have not found that silver nitrate solution is readily absorbed, unless the slide is first soaked in a solution of about ten minims of hydrochloric acid to the ounce of water. After this acid bath the slide may be rinsed, and painted over with silver nitrate solution. There is, however, probability of brush marks if this method is adopted. The slide must then be rinsed and its surface wiped before placing it in the barium sulphide solution. Should the intensification be too great or the high lights tinted, a very weak solution of permanganate acidified with sulphuric acid will clear the slide, and the same solution may be used to remove the intensification, either partially or completely. Silver does not appear to possess any advantage over lead except that silver sulphide is known to be permanent, whilst lead sulphide in a slide may prove to be not quite so stable.

An extremely warm brown color and a moderate degree of intensification may be obtained by first treating a slide with a solution of uranium nitrate in water, and after a momentary rinse placing it in a ten per cent. solution of potassium ferrocyanide. It is important to note that this is the yellow prussiate, and not the red prussiate or potassium ferricyanide, which latter has no action in this case. If a first application is insufficient, the slide may be returned to the uranium nitrate. The slide also may be cleared by after treatment with dilute acidified permanganate.

There are undoubtedly many other applications of this method of combined toning and intensifying carbon slides and transparencies which will be extremely interesting; but it may be well now to summarize a few of the little details which must be attended to during the manipulations. In the first place some little attention must be given to the slides whilst in the alum bath, as, in the case of lead intensification. At any rate, the alum must be uniformly distributed in the slide. Then, a slide when placed in the metallic solution must be uniformly dry, otherwise it would not take up the metallic salt evenly. The dish must be rocked, and the surface uniformly wetted. The strength of the solution, and the time required for its absorption, must be found by experiment. It may differ slightly in each case.

It is quite possible that an old and very much hardened slide may resist a solution which a fresh slide would absorb readily. In this connection it is well to remember that soaking in dilute hydrochloric or acetic acid would tend to soften the gelatine of a hard slide. For this reason acids and alkalies must only be used in a very dilute state. My first experiments were made with sodium sulphide, which almost invariably caused frilling and blistering. With the barium compound I have not had any trouble at all. Whilst in the sulphide solution the surface of the slide should be gently gone over with a tuft of cotton.

It is very important that the action of the sulphide should be complete, otherwise the slide will not have proper gradation and brilliance. For this reason if the sulphide solution is fairly dilute plenty of it must be used, and it must be renewed, if necessary,

to complete the action. The degree of intensification cannot be altered by modifying the action of the sulphide. This depends entirely on the amount of metallic salt absorbed in the first instance.

It is quite easy to repeat the intensification indefinitely if desired. It is also possible to mix the metallic salts in certain cases. For example, some beautiful tones may be obtained by using a mixture of lead acetate and an iron salt. The iron sulphate is not so suitable for this purpose as the perchloride. This may be bought at the druggists in the form of a liquor, two or three drops to the ounce of water of which will probably suffice. This ferric chloride, followed by the yellow prussiate as used for uranium, should give a very fine blue.—T. H. GREENALL in *Amateur Photographer.*

Some Copying Difficulties

While it may be admitted at once that there is inevitably some deterioration in the course of copying, it is only right to point out that, if the copying is properly done, it should be very slight; so slight, in fact, that only when the result is examined very critically indeed should any signs be perceptible that it is not a direct picture.

The reasons why a copy is necessarily not quite so perfect as an original are two-fold. One is that the subject that is to be copied is very much weaker in contrast than any original subject of the ordinary kind is likely to be. The other is that when the subject is a paper print, there is the grain of the paper to contend with. These two factors may be considered in that order.

On the question of contrast, a little reflection shows that it must of necessity be very small, comparatively speaking. The original with a maximum of contrast is an engraving with good black lines on white paper. The highest light in such a subject is the white paper seen in the illumination which is used for the work, while the deepest dark is the black ink seen in the same light. Paper coated with a good black ink is very far indeed from being perfect black. It reflects a good deal of the incident light; in fact, if it is viewed in good illumination against something that really approaches black, it seems quite light in tone. Take, for example, a box lined with black paper, the interior of which is in shadow, and hold in front of it in a good light a piece of paper coated with photographic dead-black varnish, which would be darker than the blackest lines of an engraving. It is seen that the dead-black surface in such circumstances stands out quite brightly against the dark background of the interior of the box.

Such an experiment gives us a clue to the cause of the want of contrast in a picture or an engraving: viz., that we are without any help in the way of shadow. In a natural object we have the different reflective powers of its different surfaces; and, as well as that, we have the play of light and shade. We may have in the most brightly illuminated parts of the subject light and dark surfaces as broadly contrasted as we have in our engraving, but over and above that, we have those same light and dark surfaces in shadow. A dark surface in shadow is very many degrees darker than the same surface in a strong light. In portrait work, for instance, in the folds of a dark dress, we have dark areas far and away darker than any we shall ever meet with in the blackest blacks of an engraving; while in the same subject we may have high lights at least as bright as the brightest parts of the engraving we are copying.

If this is true of a black and white engraving, it is still more marked in the case of a photographic print, in which the highest lights are certainly no whiter than the paper of the engraving; while the darkest tones are much lighter than the blackest lines of the engraving. The softer the original photograph that is to be copied, the more marked becomes the difference between the extent of the contrasts in it and those with which the amateur is accustomed to deal in the ordinary course of his work.

It follows, then, that in copying we cannot afford to commit any fault which has the effect of reducing contrast. We must take care that the exposure is correct; and that development is continued to take full advantage of it.

In copying originals which contain no half-tone at all, as for example, line subjects, there would be no fear of over-development, however far the operation was pushed, but for one fact. That is, that prolonged development tends to block up the finer lines, owing partly, no doubt, to halation, but chiefly to irradiation or scattering of the light in the body of the emulsion itself. This effect makes it important not to carry the development too far.

As there are only two directions in which we can work to get contrast in such subjects, by increasing the opacity of the high lights and by keeping the shadows as free from deposit as possible, it follows that it is quite as important to have the shadows clean as it is to have the high lights dense. Hence it is often found useful to give the negative a brief treatment in a ferricyanide and hypo reducer to clear the shadows; even if this has to be followed by intensification to increase the opacity of the other parts. Special "photo-mechanical" or "process" plates are made, which tend to give great contrast, both by working very cleanly and by readily giving density; and if the best copies of black and white subjects are to be made, such plates are a necessity.

When we come to the copy of a photograph with half-tones, the conditions are no longer the same. With a black and white original, we can aim at getting the utmost contrast between the two tones. Absolute opacity on the one hand and absolute transparency on the other are never obtainable; but we can get within a reasonable distance of them, and this should be our aim. There are no intermediate gradations to trouble about. But, with a print in half-tone, the whole subject consists of such tones, and upon a faithful rendering of them depends our success. Exposure is just as important in such a case as it is with the black and white original; development is still more so. With insufficient development, we shall get a loss of contrast, which we can ill-afford; while over-development will result in a loss of gradation in the high lights.

Process plates are no help for such subjects, as they are expressly prepared to ignore half-tones. A good slow backed plate of the ordinary kind is as good as anything, provided there are no color difficulties in the original with which we have to contend. If there are, then an orthochromatic or even a panchromatic plate may be needed, together with a suitable screen. For reasons into which we need not go here, it will be found that a backed plate of the self-screen variety is very good for copying work, even if the original has no color complications.

We would lay particular stress upon the importance of correct exposure in copying. Unless the photographer is doing such work constantly, he will find that it will pay him to make a trial exposure in a series of strips, and develop it very carefully, so that there can be no doubt what time will give him the best result. It must be borne in mind that, from the nature of the subject with which we are dealing, there is far less latitude than there is in the case of ordinary direct photographic work, and we must therefore determine the time within much narrower limits. Hence the value of a preliminary trial.

On the other cause of defective copies, that of the grain of the paper, there is not so much that need be written. This is almost entirely a matter of illumination. It is not so easy to secure even illumination as might be imagined, however.

With daylight, out of doors, the excess of top light must be counteracted. A sheet of looking-glass laid at a small angle with the horizontal, between the camera and the copy, has been suggested. Another plan is to have the camera and easel mounted on a board and to tilt this until the original faces the sky as nearly as can be arranged. When working indoors, the easel may face the window and the camera be placed either just outside the window or as near to it inside as possible. Daylight is not very manageable in this respect, and the best copying is done by dispensing with it entirely.

When working by artificial light we can use a two-fold light source, one on each side of the subject. In this way the little shadows which are cast by the hillocks of the paper by one light are illuminated by the direct light from the other, and vice versa. A couple of metal filament lamps, screened so that no direct light from them can reach the lens, form a suitable illuminant for copying from a small original, but with anything much larger than half-plate, further steps must be taken to secure even lighting.

Two lamps on each side are an obvious solution of the difficulty. Another is to move the lamps up or down during the exposure, so that each part of the edges of the print in turn is nearest to them. Some very successful copying has been done by means of a couple of mercury vapor lamps, one on each side of the subject; but only professional copiers on a large scale would feel that the expense of these was justified.

If particular atttention is given to the rendering of the gradation, and to the illumination of the original, it should be possible to make copies which show little or no signs that they are not taken direct. Such a result

is what should be aimed at; and the photographer should on no account rest satisfied with an imperfect result, on the ground that there must necessarily be a falling off in a copy.—W. D. in *Amateur Photographer.*

Tanks for the Photography of Objects in Fluids

A correspondent recently made reference to the problem of photographing an egg floating in water in an ordinary tumbler. In that case, of course, the tumbler acted like a cylindrical lens, and distorted the egg very violently. Work of this kind requires a plane-sided tank, such as is seldom at hand and not readily procurable when wanted. In fact, it is in any case difficult to get one made with sufficiently good glass to be perfectly satisfactory for photographic purposes, unless one is prepared to pay a very long price; a great deal more than the real value of the glass required, which is itself a fairly stiff item. If, however, the photographer likes to buy the glass himself there is no very great difficulty in doing the rest of the work, though, until one has tried, the making of a water-tight glass-sided tank seems a task of considerable difficulty. Only two sides need be of glass; the other two sides and the bottom can be of wood, but it is as well to fix narrow strips along the top of the two glass sides to render the framework construction more rigid. Close-grained pieces of wood, hard wood is preferable, should be selected, and cut accurately to size, so that each of the three pieces has dead parallel sides and perfectly square angles. They are fitted together with screws, and when one is satisfied that all is correct—that is, that the joints are as close as they can be, and the open sides all in one plane so that glass can lie flat against all three pieces—the whole is unscrewed and put together again with water-tight joints.

For this fitting process we want two things, both easily obtained and cheap; some asphalt solution and some marine glue. This glue is usually sold in boxes, and to get it out we have to warm the box in front of a fire until the cement becomes plastic enough to be pulled out in strips. While soft it is readily rolled into sticks, in which form it is most easy to use. The wood is painted all over with two coats of asphalt, having first been warmed sufficiently to ensure its dryness. When these coats are dry, it is warmed up again and some hot cement, first heated close to the fire or in a Bunsen or spirit flame, is then spread along the parts that come into contact to form the joints. The cement can be spread evenly with a hot knife blade. While the cement is soft the parts are put together and screwed up, heating the joint strongly before the final tightening up of the screws. A hot knife will then remove or smooth off any cement that exudes from the joints, and can also be used to fill up the sharp inner angle between sides and bottom of tank with a little extra cement. The cement can be picked up on a hot knife and applied just like putty, and this is one of the easiest ways of applying it.

Glazing the sides is the next operation, to facilitate which we prefer to provide rebates so that the glass will fit in as it does in a window or picture frame. If one is a good enough carpenter the rebates can be cut, if not they can be built up with narrow slips. In the former case they must of course be cut before the wood is put together, while in the latter we need fairly thick wood, an inch thick, say, to provide room for them on the edges. If built-up rebates are used, the strips must be prepared and be cemented and screwed up just like the main joints. So far a couple of quarters will probably represent the outlay, but the glass will cost a good deal more than this, since it is necessary to use the best quality colorless plate-glass. The kind of plate-glass specially adapted for enlarging easels will serve. It must, of course, be cut to fit the tank sides exactly. Incidentally, we may note that this kind of glass is exceptionally easy to cut, so if the operator possesses a diamond he can do the cutting himself without fear of mishap.

The method of fixing the glass in the rebates is similar to that of glazing a window frame, with the exceptions that we use cement instead of putty, and a hot knife in place of the usual putty knife. The rebate is neatly coated with a bed of cement, and also the edge of the glass, then the latter, after a good warming in front of the fire, is pressed firmly into the rebate. By keeping the whole thing warm and continuing the pressure a quite close joint can be secured, and the glass can be held down by sprigs in glazier's fashion. The outside angle between glass and wood is then filled with cement, again in glazier's fashion, with the aid of the hot knife.

The other side of the tank being treated

similarly the job is finished, and we are possessed of a tank that is as reliable and efficient as anything we could have purchased for three times the price. Those who shirk the cutting of rebates, or who have not wood thick enough for the method of building up rebates which we have described, can adopt either of two other expedients. They can fix slips outside the ends and underneath the bottom of the tank so as to form rebates by projection, or they can cut the glass the full size of tank and after, cementing it on, hold it in place by metal angle strips, also coated with cement and screwed to the wood. This last is a possible method, but one far more difficult to carry out satisfactorily than it may appear to be. It is much better to build up the rebates, either on edge or sides of the wood, as described, though cut ones make the best job of all.

The glass sides need not be secured to the horizontal strips that join the tank ends at the top—that is to say, each glass really wants to be cemented only on three sides. If we use thick, hard sound wood large tanks can be constructed in this fashion at comparatively very small cost, and a very material advantage is the fact that we can make tanks of any size and proportions that may be convenient, though our choice is very limited if we rely on purchasing what we require.

Tanks such as these are eminently useful to photographers who have a taste for experimental photography, as well as to those who wish to study aquatic plants or creatures, while they are also of great value to lecturers demonstrating optical phenomena. For these last purposes a tank with four glass sides is generally most desirable, but this is a type by no means easy to make. It is, however, quite a simple matter to insert some small windows in the wooden ends of a tank such as we have described, all that is necessary being to cut a hole through the wood, build up a rebate around it, and cement in a piece of glass. In such a case the glass should be on the inside of the tank end, and should be fitted before the tank as a whole is put together.—*British Journal of Photography.*

Faked or Scientific

Another cherished illusion has been rudely shattered. We learn from seemingly reliable authority that high power motion photomicrographs of living germs are not what they seem.

A cameraman friend recently sought, with the co-operation of a doctor having considerable photomicrographic experience, to produce some film of live "bugs". My friend soon learned, among other things, that owing to their natural transparency, disease germs must be stained in order to be photographed; the staining process kills the germs; with high magnifications, instantaneous exposures are impossible even with powerful arc lights and condensers; and, that most disease germs are not very active in their behavior, anyhow.

However, our friend was not quite satisfied but persisted that he had, himself, seen good cinema-photomicrographs, even though it did not seem possible to make them.

Now we learn through a high German authority on optics, that high magnification cinema-photomicrographs of living micro-organisms are impossible, owing to certain physical limitations which can be explained only in terms of microns, waive lengths, refractive indices and the like,—things with which ordinary mortals are only remotely acquainted. But the fact remains that moving pictures of microbes have been made, and this same German scientist explains how it was done. The germs were first prepared on slides in the approved manner for "still" photomicrographs. Then, "movement" was imparted to the stained, mounted and lifeless germs in much the same manner that action is instilled into animated cartoons. The effect of individual microbes passing around and behind one another was accomplished by the manipulation of two or more different slides, photographed on the same film. As the microbes were lifeless and practically embalmed, individual time exposures and the greatest deliberation was possible. Obviously, infinite patience was required in producing these cinema-photomicrographs. Nevertheless, German thoroughness has produced moving pictures of lifeless micro-organisms that so closely resembled the behavior of living microbes under the microscope that even the majority of the bacteriologists were deceived. In fact, these pictures, when produced by those familiar with the habits of microscopic "bugs", are evidently as satisfactory as would be motion pictures of the living microbes, were it possible to make them.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Making Positives Direct

An Iowa reader wants to do some experimenting along the lines of producing positives direct. Or rather, he wants to know if there are any suggestions that I can offer that will enable him to get a positive instead of a negative, to the end that from such positive he might produce an enlarged negative without the extra work of making the positive from the original negative. I really do not know of any dependable method of making a positive as he wants, although I have seen more or less satisfactory positives produced from the original exposure, generally due to some accidental influence. All that I can suggest is that he select a subject having no decidedly great contrast, make an exposure that is a trifle full rather than short, start development in a developer like metol that brings all parts of the image up together, and then, just as the image is faintly visible, subject the plate to a weak light like that of a match waved near it, followed by completion of the development. This, I think, will give him a positive image, buried beneath a fairly good coating of surface fog; but a good portion of this last can be removed by applying a strong Farmer's reducer quickly to the well dried plate, or in such a way that the action is confined to the surface where the fog exists. I cannot say that this will work out to my correspondent's satisfaction, but it will give him a basis upon which to experiment, I believe. If there was any satisfactory and reliable method of getting the positive image direct by the original exposure, our motion picture people would be employing it quite often; in fact, the method would quickly come into quite general use. A little hypo in the developer has been known to cause reversal of the image, but I do not think such action is ever complete, the negative being reversed in some portions and normal in others, the difference depending upon the amount of light action in the different parts.

Using Sand In Printing

One busy professional that I know keeps a cigar box full of silver sand standing by the side of a printing box that he uses for such prints as he makes in a printing frame, prints that require special dodging. This box, by the way, has the four lamps in the top, the lower half of the front being removed for the insertion of the frame and to allow of the dodging generally done with a bit of card. The printing frame lying flat and face up on the bottom of the box with the lights above and the open half of the side in front, makes such dodging easy. But in some cases, particularly when the part to be held back comes in the center of the negative, the sand is found most convenient. Perhaps one face in a group prints too dark or the detail in a certain shadow becomes buried before the rest of the print is sufficiently exposed. All that is necessary is to deposit a more or less thick coating of the sand over that portion of the negative. The sand naturally softens off at the edges of any amount that may be placed on the glass, and only a very little practice is required in its use to enable one to work wonders by its aid. It is, of course, advisable to insert a piece of glass in front of the negative, be it a glass one itself, or two sheets of glass if a film negative; and furthermore, even that expedient might not give sufficient diffusion if the printing light is a more concentrated one.

Restoring Album Prints

A Washington correspondent wants to know how he can best restore or revive the strength of some old albumen prints, portraits, that he has been asked to copy. As a rule, these old prints will copy much better than one would suppose, and I would advise that good copy negatives be first made, using an ordinary plate, before any attempt to revive the prints is undertaken. Then remove them from their mounts by soaking the

necessary length of time in cold water, place for a couple of hours in a five per cent solution of common alum, wash, and finally intensify with mercury followed by ammonia, just as one would intensify a negative by the same process. One worker who uses this process quite successfully, follows the bleaching by mercuric with a subjecting of the print to the fumes of strong ammonia instead of immersing in a solution thereof.

Using Some "Know How"

There was an amateur photographer, one of considerable skill and experience, talking with another of his kind in the stockhouse in which I happened to meet him. The first was ordering a dozen plain and another dozen orthochromatic plates, when his friend asked him why he did not use the orthochromatic kind for all his work. For reply he selected two prints from a batch made from some negatives that he had recently made out at the park, both of the same subject and taken within a few minutes of each other. One exposure had been taken on a plain plate and the other on a color sensitive one, the reason for the variation being clearly apparent with the prints before one for comparison. The subject in question was a white building with a well defined tower above. The one made on a plain plate was taken from well to the side, from a position in which the broadest presented aspect of both the building and the tower was somewhat gray by being in shadow. On the plain plate the subject stood out nicely from the almost clear white of the sky, something that would not have happened had the orthochromatic plate been used with its resultant fairly well tinted sky. The other view, made from the front and made on the color-sensitive plate, showed the tower and the building itself, in bright light on that side, as white against the darker sky. Had the plain plate been used for that view, tower and building would have blended into the sky and the usual effect secured under such conditions would have been secured. The color sensitive plate or film is what one should use in a large majority of cases, but there are, occasionally, conditions under which a plain plate will best serve the purpose. The use of a little "know how" is not to be despised in the matter of determining which should be used.

Copying Line Drawings

A Massachusetts correspondent wants some advice on the subject of copying some line drawings or pictures of that character, as he finds the work requires something different from his usual procedure in copying pictures having half-tones or intermediate gradations between the black of a line and the white paper. The proper procedure is to use a plain plate, one thickly coated, which means not too fast, preferably backed, and give ample exposure. For a developer, dissolve two ounces of sodium sulphite crystals in ten ounces of water and add eighty grains of hydroquinone and two drams of formaline. Development should be carried far enough to make the high-lights, the opaque portions, clearly visible on the back of the negative, even to the point of slightly degrading the lines or clear spaces. If, after fixing, there is still a slight veiling of the lines, a short immersion, hardly more than a rinse, in a freshly mixed Farmer's Reducer, will clear up these lines without any apparent effect upon the general density. This is the practice of one of our local men who does considerable such work and does it well, and our correspondent should have no difficulty in achieving success by following his example.

Using Magnesium Ribbon

A New York correspondent has fallen heir to a couple of rolls of magnesium ribbon that he wants to use in copying work. He finds, however, that it is hard to ignite, sputtering and even going out. The difficulty lies in the thin coating of oxide that the ribbon has acquired. All that he needs to do is to secure a piece of fine emery cloth and draw a length of the ribbon between the folds of a piece cut a convenient size. As the ribbon is made bright and metallic looking he will find that it ignites quite easily.

Intensifying Lantern Slides

A New Jersey reader has been trying to intensify some lantern slides with the usual mercury and ammonia formula, but finds that it makes the image coarse, changes the color, and gives him a fine crop of pinholes quite frequently. A better intensifier for his purpose is the Wellington formula for silver intensification given in the last five or six issues of the "British Journal Almanac", and no doubt in many other such compendiums of photographic formulas.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

The Post Card Albums

Those members making post cards who have not as yet contributed their five or six cards for the next Circulating Post Card Album, should do so at once as the time is limited to thirty days following this announcement. At the expiration of that time, about May fifth, the album will be closed and at once sent out on its route list to the several contributors and a few others who are interested therein but who do not deem their work as yet eligible. Not only is the receipt of the album a privilege well worth the small trouble of sending on the cards required; but, by being represented in the album the member is put in touch with other workers who wish to exchange, and he can better judge of their work from the examples shown, as they can of his own. Those wishing their cards returned after the album has gone over its circuit can be accommodated if they will make the request when sending their cards, although so doing breaks up the albums which would otherwise be available in showing new members what was being sent out over the routes. Address all post cards or inquiries concerning the Post Card Division to: JOHN BIESEMAN, Director P. C. Div., Box 136, Hemlock, Ohio.

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington Street, Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Claus Spreckels Building, San Francisco.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

John Bieseman, Director Post Card Division, Hemlock, Ohio.

James B. Warner, Director Stereoscopic Division, 413-415 Claus Spreckels Building, San Francisco.

A. E. Davies, Director Western Lantern Slide Division, 1327 Grove St, Berkeley, Cal.

Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4590—George F. Belden, 903 Pine St., San Francisco, Cal.
3¼x5½ to 8x10, various papers, of principally mountain scenery, high Sierras, etc.; for similar. Class 1.

4591—B. W. Moultin, Quincy, Ill.
General views; for the same. Class 1.

4592—Will A. Hale, Lebanon, Tenn.
Any size, various papers, of landscapes, local views, seashore, etc.; for the same. Class 1.

RENEWALS

188X—Edward Truman, Burton, Ohio.
Class 2.

3227—V. Rose Huff, Chagrin Falls, Ohio.
4x5 and enlargements, developing papers, of interesting subjects in good work and prompt exchange; for the same, am partial to animal, marine and child studies. Prints and post cards. Class 1.

3481—Mrs. G. E. Bolkcom, R. F. D. No. 2, Spangle, Wash.
3½x5 and 5x7, developing papers of landscapes, portraits and general subjects; for the same. Class 1.

3820—W. S. Cotton, 5021 33rd Ave., S. E., Portland, Ore.
Unmounted stereo prints, standard size and 45x107 mm., for the same. Negatives also for exchange. Class 1.

3852—J. W. Jeffers, Frankfort, Ky.
Vest pocket, 5x7 and enlargements, various papers, of landscapes, genre, and a few nudes of children only, also soft-focus work; for anything in artistic line. Class 1.

4033—Richard S. Foster, P. O. Box 3106, Bridgeport, Conn.
Up to 6½x8½, also enlargements, developing papers, of landscapes, animals, etc.; for views of general interest, animals, landscapes, marines, etc. Good work only sent and expected—3 to 5 pictures. Class 1.

4163—C. A. Heald, 330 E. San Bernardino Rd., Covina, Cal.
Class 2.

4333—Juventino Ocampo, Apartado 1, Pachuca, Hgo., Mexico.
3¼x5½ or post cards, developing paper, of animals, birds, landscapes, groups of girls, mining scenes, and miscellaneous; for wild animals, marines, landscapes and beautiful girls. Class 1.

4585—Willard Oakes, Box 922, Portland, Ore.
(Was 1229 East Main St.)
2½x4¼ up to 10x12, various papers, of Columbia River highway, and Pacific Northwest; for scenery, flowers, gardens, beach, mountains, rocks, etc. Class 1.

CHANGES OF ADDRESS

4355—C. S. Beardsley, P. O. Box 573, Vallejo, Cal.
(Was 1013 Amador St.)

4418—William S. Wilgus, 2102 Broadway, San Diego, Cal.
(Was Gordon Arms Apt.)

4433—John Y. Owsley, 1336 Green St., San Francisco, Cal.
(Was Salt Lake City, Utah.)

4527—John J. Lee, Lock Box 856, Ashtabula Harbor, Ohio.
(Was 25 Market St.)

4565—Henry S. Drake, 425 S. Stoneman, Alhambra, Cal. (Was 723 Obispo Ave.)

4569—Niles N. Fritz, 519 N. 5th St., Allentown, Pa. (Was Lehighton, Pa.)

CLUB NEWS AND NOTES

Southern California Camera Club

The activities of this enterprising band of camera workers, somewhat interrupted by war enlistments and the "flu" epidemic, have all been resumed with added vigor. On the evening of March sixth, David Sheahan, rotogravure expert on the "Times," gave a most instructive demonstration on Carbon Printing, and on the evening of the thirteenth there was a fine exhibition of lantern slides. On the twentieth the long-delayed Course in Photography will start, with Mr. Sheahan as the director, assisted by other experts who will handle separate subjects as they are taken up. This course, for which there will be no charge, while intended primarily for the beginner, will afford instruction for even the most advanced by reason of the thoroughness with which the different branches will be covered. Following the one opening session in March, the second and fourth Thursday evenings of each month will be devoted to the work.

California Camera Club

A large and interesting collection of prints, the work of Sanborn Young, member of the Pittsburgh Salon, graced the walls of the Club rooms during March. Both landscapes and portraits were in evidence, and an unusually large number were in the gum bichromate process, but all were well worth study and attention.

The latter part of March will see the first of the regular monthly outings of the Club, weather permitting. The objective point selected lies among the rolling hills back of Leona Heights in Alameda County. Judging from the number who have signified their intention of participating, the attendance will be large.

Charles L. Snyder will shortly give the members a demonstration on "Home Portraiture with the Electric Light", showing the possibilities of simple, inexpensive home equipment. He will go into the subject thoroughly, endeavoring to create an interest in this illuminant as a worthy rival of the flashlight.

At the regular Club meeting in March, Matt. Draghicevitch, a Club member, gave a very interesting exhibition of lantern slides, the collection comprising landscapes and marines, all from his own excellent negatives.

OUR BOOK SHELVES

Photography and Fine Art

Henry Turner Bailey gives us, in this new book, something that is really worth while. To those who do not know of Mr. Bailey and his work, and one of his activities makes him Dean of the Cleveland School of Art, we can do no better than quote from the volume's dedication: "To everybody who enjoys a camera and likes photographs, and who in secret wishes that he knew more about how to produce beautiful pictures, this book is dedicated, by one to whom that state of mind is like a familiar friend." Then all we need say is that Mr. Bailey has most consistently held that idea in mind in placing before the reader his wide knowledge of the subject of which he treats. There are some ninety-six handsome illustrations, illustrations that really illustrate the text, and the latter is informative and instructive in a way that will gladden the heart of any photographer ambitious to make his work better, more pictorial, more artistic if you will, or perhaps only to make his work more pleasing and satisfying. While not a bulky volume, the logical mind, the "teacher" mind, of the author has enabled him to make the work surprisingly exhaustive and as a result, direct and unhampered with wordiness such as a less sure writer might find difficulty in avoiding. Published by The Davis Press, Incorporated, Worcester, Massachusetts. Price one dollar and fifty cents. Hirsch & Kaye and Marsh & Company of this city will supply copies, we understand.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Edward P. O'Neil of the Pike & O'Neil Company of Portland, has become quite an orator. He recently made a speech before the Portland Ad Club that took the members off their feet.

V. R. Trine, formerly manager of the Woodard, Clark photo department, has bought an interest in the Pike & O'Neil Company. His popularity with the photographers has resulted in a large increase of business for the latter firm.

Another old-timer has gone into business for himself. L. J. (Doc) Bergman has bought out the business of the Multnomah Photo Supply Company in Portland.

Miss Mary Wood, now with the Multnomah Company, will be married to Lieutenant Bill Winters, foreman of the finishing department, in June. Wood and Winter seem to be a propitious combination, and Bill is to be congratulated on his good fortune.

Last month Henry Sackrider made a trip from Marysville up to the city in his new roadster.

Vallentine of Redding has a new record. Now it is nine.

During February, Edith Hayden of Roseburg took a week's vacation in Portland.

Chester Stevenson of Eugene is back from "over there", and can be found at the Linn Drug Store.

K. C. Barklay of Eugene now has a fine corner store and should double his business. We wish him all success.

Strip Printing

The method of printing bromides in strips either "three-on" or "six-on" is, to judge by our ever increasing sales becoming more popular than ever both for post cards and larger work, and we offer a friendly criticism of some of the methods of working that have come under our observation.

The chief trouble seems to be in getting all the images the same depth, and we think that in most cases it is not the assistant who is to blame, but the method. The exposing light may be so powerful that the exposure necessary is only a fraction of a second, and it becomes an easy matter to make a fifty per cent, or even a hundred per cent, error. The light should be screened down, or a lower candlepower light used, so that at least two or three seconds exposure is required, the extra time so occupied would be saved by the absence of "repeats", and better all-round work would result. In counting seconds it is better to count quickly: one, two, three, four, one; one, two, three, four, two, and so on. A loud ticking clock will serve as an accurate guide.

Another defect often met with is the incorrect placing of a vignetted head on post card strips, with the result that upon trimming, the head is to one side of the card. To prevent this it is a good plan to get a waste post card, exactly $3\frac{1}{2}$x$5\frac{1}{2}$, and cut out an oval opening about $2\frac{1}{4}$x$3\frac{1}{2}$ in the center or a little higher. When adjusting the negative in the carrier, the cut-out post card is placed on it, taking care to see that the card is in the correct first "feed" mark.

Another trouble is air bells in development or fixing. The chances of getting these in development can be reduced to a minimum by placing the strips in the developer in pairs, back to back. We have seen many skilful assistants work this way, using the right hand to pair them and the left hand to place them in the developer and turn them over. Up to a dozen pairs can be handled in this way, taking care to keep them in the order in which they go into the developer and use plenty of solution. With the finger and thumb it is an easy matter to pick out the bottom pair, place it at the top, and so on, removing the pairs one by one as they become fully developed. When thrown in the fixing bath, an assistant should at once part the pairs and fully immerse them, afterwards keeping them on the move. It is true that

perfect fixation is more important than thorough washing, and it is equally true that the first minute of a print's immersion in the fixing bath is the most important, and the fixing solution should have free access to both back and front of the print.—RAJAR LIMITED,

Illinois College of Photography

Occasionally we are given quite pleasant surprises, one of the most recent being a visit from Robert Travetute of '99. He is now managing a thriving studio business in Tuscola, Illinois.

W. W. Warfel, 1914, writes that he is stationed at Pittsburgh, Pennsylvania, in the Roentgen Ray Department of the General Hospital there.

Frederick Lee, 1916, home from the army, recently paid the College a short visit. Mr. Lee has been serving in the Engineer's Corps stationed at Washington, D. C.

Harold Tandy, 1916, who has been in the photographic department of the Aero Division, after a brief visit to the College and his Effingham friends, has resumed his duties at Camp Parkfield, Millington, Tennesee. While here, Mr. Tandy exhibited some very fine pictures taken by himself while in flight in his plane. We are always pleased to have Mr. Tandy visit us.

John Rinehart, now in Government employ at Columbus, Ohio, and for fourteen years the efficient secretary of the Bissell Colleges, was called home last week by the death of his two brothers. Walter was a successful lawyer, who for several terms was Representative from this district, and Daniel was at the head of a typewriting school.

A New Photographic Paper, Cosmo

As announced last month work on the plant of the old Pacific Photo Paper Company and the assembling of needed raw material has been pushed forward, and the new firm has every reason to be proud of the progress made. Everything points to the successful production of an excellent paper of uniform quality by the new firm, the Pacific Photo Products Company, recently incorporated in this city.

It is the intention of the Pacific Photo Products Company to manufacture a high grade product to be sold at a reasonable price. The president of the new concern is Henry G. de Roos, a well known photo supply dealer of San Francisco, who, after investigating the proposition from every angle, has assured us a tremendous success. The paper is to be known as Cosmo, and will be made in several different grades. It will be the policy of the company to establish agencies throughout the United States for the distribution of their product. The services of a very efficient staff has already been contracted for and it is the intention of the company to have Cosmo paper on the market within thirty days.

A Convenient Dark-Room Lamp

The subject of dark-room lighting is an old one, but is, nevertheless, one in which every photographer is vitally interested. In the past, the use of natural-colored-ruby electric lamps has been limited on account of the difficulty in obtaining them. The illumination secured in many cases was unsatisfactory in that the lamps were too bright for sensitive

plates and films but not bright enough for convenient working of papers. These objections can now be entirely overcome by the use of an All-Nite-Lite transformer with its lamp dipped three or four times in standard sign lamp-dip to obtain the desired shade of red, ruby or yellow.

The All-Nite-Lite transformer is a small device about the size of an ordinary lamp which may be operated from alternating current lighting circuit. One end screws into any handy lamp socket; the other end contains a miniature socket for the colored lamp. The device is compact and presents a neat and finished appearance. Both transformer and lamps may be obtained from electrical supply dealers in any part of the country. A very convenient outfit consists of one All-Nite-Lite transformer with one ruby and one yellow lamp; the ruby lamp for plates, films and bromide papers and the yellow lamp for the various gas-light papers. With these combinations the light produced is sufficient to enable the photographer to do his work satisfactorily and yet run no risk of fogging his plates or films. The cost of operation is negligible which makes this device equally desirable for both amateur and commercial photographers.

XXVI No. 5 MAY, 1919 Price, 10 Cents

CAMERA CRAFT

SAN FRANCISCO
CALIFORNIA

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ANSCO COMPANY Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

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Continued on Next Page

"THE SAMPLER"
By NANCY FORD CONES

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXVI MAY, 1919 No. 5

The Work of Nancy Ford Cones

By Sigismund Blumann

Illustrated with Examples of Mrs. Cones' Work

Those who aspire but never succeed, are always in the condition of waiting for inspiration, incentive, or some other outward given impulse to do. It will generally be found that the one who accomplishes great things has done them from an inner urge that will not be denied and is dependent on no influence other than a desire to be doing and an ability to do well; and, in photography, this is a marked characteristic of those who succeed. Those of the mediocre who live in large cities, complain they are too far removed from Nature's beauty, too busy to travel into the country, and too cramped for room in which to work. Those who reside in the country are continually lamenting that they cannot learn where nothing is known, cannot get encouragement where there is no appreciation, and that a lack of proper associations and environments kills incentive. Yet men of affairs who spend long and strenuous hours at their business and live in metropolitan apartments, with perhaps a clothes closet for a dark-room, hearing the roar of traffic and interrupted by a ubiquitous telephone, go out into the prosaic city streets, catch a bit of beautiful lighting on the facade of a department store and come home to produce a salon prize-winner. A farmer with the divine spark takes his old 1886 box, with its single meniscus lens, and finds his great picture in an odd corner of the field. One cannot be diverted from accomplishment by the over abundance of environment, association, and advice, nor the other deterred by a total lack of them.

Nor are the biggest fish caught by the finest rod and fly. Anastigmats and diffused focus lenses do not make the pictures. It is not ridiculous to think

Rafael might have painted a masterpiece with his thumb. In fact, oddly enough, most of the eminent pictorialists work with the simplest of apparatus, and often with the cheapest of lenses. Not that fine equipment interferes with fine production, but that, altogether too frequently, the enthusiasm for photography finds its vent and complete satisfaction in the buying of and playing with the latest and most expensive toys. Have we not laughed when zealous amateurs quarrelled over the relative merits of a Zeiss and Goerz, the while the honors were being carried off at the exhibitions by Silas Jones from Gookum, Missouri, a worker who bought his outfit for two dollars, complete, second-hand, one day when he was in town. And have we not seen the wonderful pictures of Rabe, who shall never make another for our pleasure and betterment; and of Nancy Ford Cones, may she live to make a million more. Both working by preference with simple and antiquated outfits. What, then, have surroundings, association, materials, or equipment to do with accomplishment other than to somewhat help in mere execution.

Mrs. James Cones, known to the elect as Nancy Ford Cones, lives on an Ohio farm. Both she and her husband are cultured and home loving. Both are photographic enthusiasts. The farm, we are inclined to think, is much like other good Ohio farms, but there happens to be an old, a very old stone house on it. Washington rested there once. In this lonely place is an equally ancient, high chimney corner. The near-by town of Loveland is like thousands of other towns, with its old folks and its young, its natty and its ragged. Were they our neighbors we might think them dull and commonplace. Comes Mrs. Cones with her magic box and lights them from within, or incarnates them with her own poetry, and they are epic, or lyric, as a result. She puts a hundred verses, a whole bookful of homely romance, into one little picture taken with an antique camera and an inexpensive lens. She prefers these to her better outfit which gathers dust (or does it?) in idleness on a closet shelf. What help does she need from a clubroom full of advisors? What incentive? She rarely exhibits and seldom appeals or tries to appeal to the academic taste of salon committees, whom God in His infinite mercy, forgive. She feels impelled to make pictures and make them.

Another exemplification comes to my mind. John Paul Edwards is a busy man in as unpicturesque a city as there is, the nearest thing to scenery within easy access being a dirty, though beneficent, river, with rather flat country about and along its banks. Yet, Mr. Edwards has given us what I am bold enough to estimate his best work, from bits of this river scenery. From all of which we are to deduce that it is not the place, the camera, the lens, that make the picture; but the photographer.

There are hunters who travel to distant places and come home with an empty bag, having shot away much ammunition at fenceposts. Photographers who go miles afield and bring back records of cows, trees, hills, roads, and not a picture,—photographers who offer a thousand excuses and not a picture, are plenty.

And there are artists who point their cameras through their back windows, or step to the corner and capture beauty as it exists wherever there are eyes to see it.

GRANDMOTHER

CONTENTMENT

THE SOLACE OF THE AGED

The first numerous contingent most frequently have expensive outfits, splendid cameras, anastigmats of the largest working apertures, mahogany tripods, and silk-velvet camera-cloths. The latter pretty generally work with any old box, a cheap meniscus or rapid rectilinear lens, and throw an old coat or apron over their head (head, heads, collectively or respectively), and supply from within themselves (themself) the deficiencies of equipment.

Follows then the deduction we have made so often of late,—that the picture is made by the artist, not the camera, and that it is made of whatever material, wrought into art not found already assembled.

"QUAINT FANCIES OF OUR CHILDHOOD DEAR"

And, as I have suggested, a striking example of what is meant by this is embodied in the work of Mrs. James Cones, known better and more fondly to picture lovers as Nancy Ford Cones, who lives on a farm near a village peopled with good and bad, pretty and homely, old and young, like any metropolis. The farm itself offers fields, trees, plows and cattle, like any farm. A thousand of us would pass it by as unpromising pictorially; and, if we stopped in town long enough to eat a lunch, should leave it with scarcely an impression of the inhabitants. We would do this just as we turn carelessly from the scenes and people about us, those near our own home. We should take our two-hundred-dollar apparatus and enrich the railroad to carry us to a place miles away; where, with the help of a solid silver exposure meter, we could persuade Nature to hand us pictures in ready wrapped packages.

What Mrs. Cones has done with her favorite two dollar and a half lens, with the material on her farm and in the simple country town, her work tells most eloquently. She gives us the romance of life, the stories that inanimate things

THEIR FAVORITE PIECE

THE RAGGEDY MAN

AN INTERRUPTION IN THE STORY

THE HELPING HAND

THE FAERIE WOOD

can tell, exquisite bits of landscape, seashore views made by the side of shallow pools, old Dutch characters and environments conjured from a pair of wooden shoes and a dust-cap. Her's is the magic of sensibility and discernment, using again and again an old stone hut with its old stone fire-place that happens to be there; the homeliest, lovingest old men and women, every wrinkle utilized to carry the tale to us; the sweetest young girl (her own daughter), in the sweetest and most unaffected poses. These are what Mrs. Cones works with; what she gives us is such poesy as attests her greatness; the material is so small a part of her art. It is as with poetry; the words are dull, even meaningless, except inasmuch as they are used in contexts. One may use them to write a scientific dissertation, another to fill a catalog, and Shelley used them to make the music of language. Looking at the Cones pictures, one is compelled to recognize that men, women, children, trees, hills, houses, cameras and lenses are merely comparative in quality and appearance. Such things bring nothing to many of us, yet along comes some gifted soul and uses them as the vehicle for the message itself. We have the lesson of Markham's "The Man with the Hoe", Millet's "Angelus", of Burns, in all his consistency, and Nancy Ford Cones on an Ohio farm. Can we do as well? Probably not; but we can strive for a cultivation of insight and observation that shall discover, to us too, beauty on our street, on our farm, or just around the corner.

If you have a fine lens, a morocco-covered camera, and a rosewood tripod, so much the better; or be it a sixty-cent spectacle glass. The one great thing is how to use what you have and to have something within yourself that is none

of these. To hopeful pictorialists, as to all in any pursuit, cultivate perception, discernment, sympathy, understanding, and finer feeling. The rest can be obtained in the shops according to your means, and out of books according to their accessibility. Examples are numerous: Edwards, whose best work was done within walking distance of his home; pictures caught, almost compelled, from the uninteresting banks of the muddy Sacramento. Porterfield creating great things in Buffalo, right in town, and not even frequently at the Niagara; and Nancy Ford Cones weaving tales that shall be classics when she has put her camera on the shelf, when she has taken to knitting in a rocker by the fireplace and is called on by little Ohioan great-grandchildren to tell them about the Raggedy, Raggedy Man, the Village Story Teller, and the rest.

If too little has been said about Mrs. Cones, it is because her pictures can tell you more about her than words. What we know of her methods has been told elsewhere and before. The human, heart appeal, of the accompanying illustrations will establish a place for the artist in the affection and esteem of any who have not already enshrined her there.

The Sixth Pittsburgh Salon

By John Paul Edwards

Illustrated With a Few of the Pacific Coast Pictures

The Sixth Annual Pittsburgh Salon of Photography has passed into the archives of history, and competent critics acclaim it the best exhibition that Pittsburgh has thus far given us. The least that can be said is that it was very much of an artistic success. The Pittsburgh Salon holds certain rank as the premier annual photographic exhibition of the Western world. Six consecutive annual successes entitle it to this standing and give rare promise for the future.

The credit for this achievement and the thanks of the world photographic, its beneficiary, must be rendered to the little group of hard-working, enthusiastic Pittsburgh men who make up the Salon Society. The amount of work required to assemble and carry through an exhibition of this size is prodigious. It is a labor of love, altruistic in the extreme, with the only reward the consciousness of a deed well done. The members of this society are all active business men, men of large affairs, and I marvel that they have found the time and energy to carry on this fine work. All credit to them.

I need not express the pleasure I felt when last February I received an invitation to act as a member of the jury of selection. Having been a contributor to the salon since its inception, I had always cherished the hope that some time an opportunity would arise for my being present, in person. I accepted with pleasurable anticipations, which later were more than realized.

Probably eighty-five per cent of the contributors to the Pittsburgh Salons have never visited these exhibitions, chiefly through geographical reasons, of course. I feel that these and a still greater number of interested non-contributors will appreciate a little more intimate insight than is afforded by the usual more or less competent reviews as offered the reader each year. For that reason I shall confine myself to a few observations, both general and pertinent, not touching upon the work of any individual contributor.

The presentation of the salon was well nigh perfect. I doubt if any similar exhibition has had a better setting or a more able handling. Through the support accorded by the Carnegie Institute, one of the large galleries of the Department of Fine Arts was made available. The spacious walls permitted of generous, restful spacing and a proper hanging of every picture. All prints were placed under glass and the hanging done by an expert from the Institute staff. The result, both as a whole and as regards details, was a presentation having a finished appearance that emphasized the indifferent hanging of the average show.

A not unimportant detail that I could not help but observe was the inclination of everyone connected with the event to exercise the greatest care in the handling of each and every print. The Golden Rule seemed happily to prevail.

Have you, friend reader, ever sent some of your pet prints to certain exhibitions and had them come back bent and battle scarred, the evidence suggesting their having been stored in the engine room and packed by the janitor between jobs? If you have, you will appreciate the more respectful treatment accorded at Pittsburgh. I fondly hope that this little digression on print handling will be widely read by the members of print committees and other interested parties.

Being held in a public art gallery, the attendance was of course very large. This fact should present a strong inducement to prospective future contributors. Thousands view the pictures shown at Pittsburgh, while tens or hundreds see the average exhibition held in Camera Club quarters or in private galleries.

Many fair questions have been put to me as to the procedure followed in the selection of the prints to be hung. This judging is always done with the greatest care and deliberation. The prints are ranged along a low moulding that extends about the exhibit walls of the gallery. While this enables the judges to consider each man's work as a group, each print is judged strictly on its merits with no regard to the reputation or standing of its maker. The beginner and the seasoned salon veteran have an equal chance. It is merit alone that counts; reputation or past performance have no bearing whatever. There is a mistaken impression broadcast that to be successful in the salons one must first acquire a reputation. Nothing could be more erroneous, at least in the case of the Pittsburgh Salon.

A print to be accepted must measure up to a high standard; in fact, the judges this year were requested to, if possible, raise the standard for acceptance above that of previous years. Of the thousands or more prints submitted, only about two hundred and eighty were hung. This is as it should be. Too many of our American exhibitions hang anything that is submitted, if it be half-way decent. The acceptance of a picture by any open exhibition should be an honor to be achieved rather than a foregone conclusion.

ON THE CARMELIAN COAST
By JOHN PAUL EDWARDS
SIXTH PITTSBURGH SALON

As this salon is decidedly a national affair, it is interesting to note the geographical source of the exhibited prints, particularly as so doing indicates the sections in which pictorial photography is thriving and progressing.

Eighteen states were represented by one or more prints; thirty states non-represented. New York came first with seventy-seven prints by twenty-five contributors; California being a very close second with three less prints by three less contributors. Pennsylvania was third with thirty-six prints by fifteen contributors; Maryland fourth, Maine fifth, and Illinois sixth, with thirteen prints by six contributors. If these figures indicate true conditions, and I rather think they do, most of the present pictorial activity is to be found in the Eastern and

MISS MARGUERITE TEW
By LOUIS FLECKENSTEIN
SIXTH PITTSBURGH SALON

Western states. The balance of the country, with the exception of one or two scattered active groups, is doing little and is seldom heard from. Can it be that there are no pictorialists in the South and in the Middle West, or are they hiding their light under a bushel?

At present the most active focus of pictorial activity in the country seems to be in California. Perhaps its in the climate, with its great percentage of sunshine days which call one into the great out-of-doors; perhaps its because

THE JEWEL OF ASIA
(RUTH ST. DENNIS)
By ARTHUR F. KALES
SIXTH PITTSBURGH SALON

of the helpful inspiration afforded by the wonderful and varied scenery of this great state. But whatever the reason, it is here that the fire of photographic enthusiasm seems to be now burning brightest. For the past five years nearly every large exhibition in this country and the London Salons on the other side have shown a large percentage of prints from California.

As to the printing processes represented at Pittsburgh, the media employed was quite varied. Gum, carbon, oil, bromoil, platinum, kallitype, bromide, and chloride were all in evidence. And in the selection of a printing process we

find a rather distinct geographical grouping of the workers. The Maine workers favored multi-gum; the Buffalo group, carbon, and the New York exhibitors seem to have been inclining towards bromoil, perhaps through difficulty in obtaining their long-favored plantinum paper, gum perhaps ranking second in their choice. Pittsburghers, while rather versatile, seem to prefer carbon; and the strong group of Chicago workers favor the same process, handling it extremely well. The Californians strongly incline to chloride papers, in the use of which I believe they can hardly be excelled. There were very beautiful prints shown in every one of the media mentioned; the variety of processes and the varied technique employed added greatly to the interest of the exhibition. I hear much as to what printing process is the best, for exhibition prints; but fortunately, the determination will hardly be made as long as there are many men of many minds and many tastes. The successful exhibitor will continue to use the medium that he feels best translates his own ideas and ideals.

The average quality of the prints submitted ran high, unusually so. This fact forced the conclusion, after the judging was completed, that the greater portion of the unsuccessful prints, the rejected ones, at this and other exhibitions are found wanting, not in technical quality but in the plain fundamentals and principles of art. And there was still a further conclusion that pictorial photographers pay, not too much attention to technique, but decidedly too little to art as applicable to photography.

Camera workers have long been demanding that pictorial photography be ranked as a fine art, but it really matters not whether it be so rated or otherwise. One thing is certain, however, photography will really begin to advance toward that cherished goal when its devotees give as much study to the intellectual as they do to the manual side of their work. At the camera clubs you hear aspiring pictorialists chatter by the hour concerning lenses, filters, formulas, plates, cameras and what not, but rarely a word about the thing that really counts, the underlying art. Mere picture-making with a camera is not art. A technically perfect, even beautiful picture of one of Nature's masterpieces, such as the Half Dome of Yosemite, is not necessarily art. The picture may convey much of beauty and grandeur, but should the credit go to the photographer or to the Creator? Did the photographer merely record its evident beauty or did he picture one of the subject's varied moods in such a way that his own emotion and mental interpretation were recorded in the finished results? To merely make a record of Half Dome would be the usual objective viewpoint. To picture the wild beauty of a storm about its heights, or to translate into design the play of sunlight and shadow on its sheer walls would be the subjective, the pictorial viewpoint. One must put something of himself into the picture if he would even call it art. Don't be merely a producer of photographic records, no matter how good, technically, or how beautiful by reason of subject matter.

The very ease with which pictures can be made with a camera, constitutes the greatest weakness of photography as an art. Too much attention and thought is devoted to the mechanical side and not enough to the intellectual.

How many of the pictorially inclined have aims and ideals; how many only drift along? The drifter often produces a work of extreme charm and

FIGURE IN THE NUDE
By EDWARD HENRY WESTON
SIXTH PITTSBURGH SALON

merit; but, as a rule, it is a flash in the pan, a mere piece of good luck. To measure a pictorialist's ability we must take the average of his work for the year, compare it with the average of last year and the year before. Is he a consistent "comer" or has he "had a lucky year"? The men with ideals usually make up the first class, the drifters the last. The beginner too often lacks the art sense, the faculty of observation, the power of expressing in his picture the emotions the subject inspires in him. Louis Aggassiz, the great scientist, used to give his beginning pupils a sea shell as their first study lesson, telling them

to study it for two whole days and then report, in writing, everything they observed about it. As a rule, on examination of their first report he would request them to study it for a day or two more and report again. Needless to say he had no hope of their making any new scientific discoveries; he was simply employing the most efficient possible method of cultivating their powers of observation.

Clarence H. White, in his school of photography, pursues similar methods. He gives out practical problems to his class. One man is given the problem of constructing a picture from an old bridge and a stream; another perhaps the gateway and path leading to a mansion; a third is given a group of old oaks or other trees. It would be easy for Mr. White to show them pictures, but his aim is always to cultivate their powers of observation, to teach them to co-ordinate the brain and the eye. To teach them to express, not merely to copy or to absorb, to construct their pictures, not merely to record them, is his aim.

This digression from the main subject, the salon, has a purpose, a most definite one. Since my return from Pittsburgh, many workers have asked me: "Why did you not make a better showing at the salon?" In every case the query was put, not in a spirit of complaint, but with the sincere desire of learning how questioner might better his work. The answer is that two-thirds of the shortcomings were intellectual ones and one-third mechanical. Most non-successful pictures lack expression. They are good prints, perhaps, but commonplace; making no appeal to the judges because their makers put no element of appeal into them. With few exceptions the "big" pictures clearly show that their author had an idea and worked it out to a successful conclusion; the unsuccessful ones, the contrary.

The one great benefit to be derived from active participation in photographic exhibitions is the establishing of standards for one's work. Participation affords one the opportunity of comparing and measuring his work with that of his peers. Many a man is held back in his real progress by the fulsome praise of well-meaning but ignorant friends. The judgment passed on one's work by two or three salon committees, while not necessarily unerring, will be most valuable in showing one where he stands and in determining the standards to which he should aspire.

One most gratifying impression forced upon one by this and other recent exhibitions, is that the great majority of the best pictures are products of straight, unmanipulated photography. Not that I have any scruples regarding manipulation of the negatives. Manipulation is all right when it is done to secure some definite, pre-determined result particularly well done. Unfortunately, it is rarely so done; manipulated work more often showing the hand of the faker than of the artist.

A very large percentage of all the exhibited prints were made with soft-focus lenses; the use of this type of lens having become almost universal among pictorialists in this country. It is also being used with more skill and discretion; the old days of extreme softness with the lens used at its worst, seemed to have been well left behind.

Pictorial photography is making continual progress; slow, but definite. Not

REVERIES
By FORD STERLING
SIXTH PITTSBURGH SALON

progress measured by the work of a few individuals of brilliant genius, but by the average work of the rank and file of camera workers. The quality of this general average rises year by year, and this progress is recorded and stimulated by strong annual open exhibitions like that at Pittsburgh. Let us hope that this event will be perpetuated into unnumbered future years, fostered by the same ability and enthusiasm and guided by the same high ideals as have prevailed since its inception.

Mezzotint Process on Developing Paper

By Frank B. Howe

With Illustrations by the Author

In the March issue of CAMERA CRAFT, Edgar Felloes very clearly and interestingly described what he so aptly calls the Mezzotint process of printing, or the producing of soft-focus prints from sharp negatives without the use of a soft-focus lens. Mr. Felloes' work is in the field of printing-out paper, as he explained, and it is the present purpose to add a sort of postscript to his remarks, for the benefit of anyone who may be interested in this process as applied to developing or gaslight papers.

Those who did not see Mr. Felloes' articles will no doubt be able to secure a copy of the March issue without difficulty, so it will not be necessary to repeat

CONTACT PRINT

FOUR-FIFTHS DIFFUSED

the details of the process here. To briefly recall it to mind, however, it may be mentioned that the mezzotint process consists of printing by making a portion of the exposure with the negative and paper separated by a piece of glass; then removing the glass and completing the exposure by contact. Upon the relative duration of these two exposures depends the amount of diffusion in the print. The advantages of the process are threefold, in that it does away with the

expense of a soft-focus lens; that it permits the use of the same negative for both artistic diffused prints and sharp prints for commercial or record use; and, finally, that it allows any degree of diffusion from sharpness to fuzziness (the latter extreme of which, let us hope, will not be made use of).

The choice of developing papers for the process is very largely dependent upon the particular negative in hand. Royal Velox, Azo H, Artura Buff Rough Matte, and, for negatives of considerable contrast, P. M. C. Number Eight, are four of the best for subjects where black images on buff stock are desirable.

CONTACT PRINT

ONE-HALF DIFFUSED

For a white stock, Velox Carbon, Azo A, Artura Carbon Black or Iris, and P. M. C. Number Seven are especially useful. For pictures which are to be colored afterward, and of which the negatives are not too soft, P. M. C. Number Seven, redeveloped sepia, is admirable. When Velox or Azo are used, the Special and Hard grades, respectively, are best, despite the fact that the same negative may require Regular when printed in the ordinary way. For extremely thin negatives, requiring the Contrast grade in contact printing, the use of Regular for the mezzotint printing, is to be recommended.

In the actual process of making the print, the negative is placed in the printing frame as usual, a sheet of glass (an old plate cleaned off is generally about the right thickness) laid on top, and the paper placed on this. The frame is then raised on one corner and tapped sharply a few times until the negative, glass, and paper fit squarely in that corner. This is to insure registration later on. The back of the printing frame is then carefully put in place and the first exposure made, the frame being rapidly moved about during the exposure in order to secure even diffusion. The closer the frame is held to the light and the more it is moved about, the greater the diffusion, and vice versa.

The first part of the exposure being made, the glass is removed, the negative and paper registered by repeating the process of resting the frame on

one corner and tapping it until the negative and paper fit squarely in the corner as before, and the remainder of the exposure made by contact in the usual way.

As to the relative duration of the exposures in and out of contact, it is impossible to give any set rule for developing papers, just as Mr. Felloes explained it was for his printing-out paper. For an average negative, half and half is most often about right, although frequently three-quarters diffused and one-quarter contact works better. Needless to say, if sufficient diffusion is not obtained with the latter exposure, a second thickness of glass will supply the desired result, while if too much diffusion results when the exposure is one-quarter diffused and three-quarters contact, moving the printing frame from the light farther will decrease the amount of diffusion.

The mezzotint process is also useful when it is merely desired to soften some subject, such as a portrait, without producing soft-focus results. In such cases, one-quarter of the exposure diffused and three-quarters contact is suggested.

Development is carried on as usual, with the regular solution for whatever brand of paper is in use. At times a slightly softer developer may be found useful; at other times it will be desirable to restrain it a bit; and at all times it will be found of value to keep in mind the possibilities which bromide offers in controlling the color.

Another point that suggests itself is the use of this process in enlarging. It is simplicity itself to give a portion of the exposure with the image thrown a little out of focus by means of the rack and pinion; then bringing it back to sharpness for the balance of the exposure. The same principles apply here as to relative exposure and development as govern the making of the prints.

In short, there is no limit to the possibilities of the mezzotint process on developing papers, and it is the purpose of these remarks to simply suggest some of these advantages and perhaps save a little difficulty in getting on the road, rather than to cover all the opportunities which the method affords. These latter are unlimited.

Correct Exposure In Enlarging

By Rev. C. R. Lowe

With Illustrations by the Author

"Fool proof", is what my friend Shipton of Long Island dubbed it when I showed him it would cover all possible variables in daylight enlarging, and that is what it will really do. I bank on it. I have used it long enough and under enough different conditions never to question its accuracy, nor even wonder what will be the outcome of depending upon it; I know just what the outcome will be. I used to make trial strip exposures, sometimes several of them, to determine the length of exposure. I had fair success, but never again for me. Even when first using the method herein described, I would shake when I exposed a sheet of bromide paper of the larger sizes, and then again when I poured on the developer, for fear the exposure might not be correct, but not any more. Having tried it out to my own satisfaction, I am thoroughly confident and perfectly at ease with it. This "meter", as I call it, will care for any thickness of negative, any paper—fast or slow, any kind or condition of developer just so it is at all workable, any time of day and any time of the year, any diameter of enlargement, any steady condition of the daylight, whether it be a cloudy day or a clear one, and any other variable which you may think of and which I have omitted. I know this is saying a good deal, but if you are using daylight for enlarging, you can soon prove it for yourself. You will have some correctly timed enlargements for your trouble, to say nothing of the satisfaction of being sure of what you can do the next time and have enlarging to do and want the bother left out.

Yes, siree, I am stuck on that enlarging meter of mine, and that is why I want to pass it along. I have tried to work seriously at enlarging for a long time, and at times in a semi-professional way. I have tried several enlarging contrivances, and have come to the conclusion that whatever others may do, it is daylight enlarging for me. Daylight has often been condemned because of its variableness, and it certainly is variable, but when this meter handles the variable to perfection, I should worry. To me, the making of a daylight enlargement is just so much process to go through, the results are certain.

The advantage of daylight enlarging lies in the speed. It even works faster, on bromide papers, than one desires if the diaphragm is wide open. I always stop down to f-11, and even that is often uncomfortably fast when the light is strong. It is strong enough to enable one to work with a variety of papers, even the contact grades, though you have but little patience, and then the light is not measured out to you by the kilowatt. The disadvantages are chiefly the variation because of passing clouds, and the fact that you have to work in the daytime, which some of our fellow crafters cannot do. The first difficulty can be overcome by working on a perfectly clear day or when it is wholly clouded

over. Only the other day I made enlargements when it was very cloudy indeed. The second difficulty may be overcome by laying off a half a day when you want to make enlargements.

This system, I am quite sure, will be found as valuable for electric light enlarging, as for daylight, though I have never tested it under such conditions. It must work. I am sure, since then, there are but two variables, instead of three, negative and paper, the light being constant. And I am sure it can be adapted to any apparatus or any conditions one may have in his work-room.

My focusing is done with a fixed-out plate on which I have drawn a one-inch square, divided into quarter-inch blocks, using Higgins' water-proof ink, the lines being scored lengthwise with the point of a knife blade. Using this, it is easy to measure the diameter of the enlargement by simply laying a ruler on the easel image and reading the numbers on the rule.

My source of light happens to be a west window, but any other direction would do as well. The window is darkened by a frame covered with compoboard, various kinds of which are on the market. This stuff is heavy enough to carry the box for the negative holder and the camera I use for enlarging, in their proper positions. A hole is cut in it and the box fitted, light-tight, the camera fastening thereto in a manner that has often been described in these pages.

Close beside this box is an opening, fitted with a door, as a source of white light when I want it. Incidentally, this door carries my 8x10 ruby light, but any moderate sized door will be found satisfactory for the meter work. And this source of light is constant; in fact, must be constant. For this reason one should make it a rule to always open the door wide when using the light for the meter.

You probably have a sheet of ground-glass in front of your negative holder for a diffuser, perhaps two. That does not necessitate having any in the door, the source of the white light. I use one sheet in my holder for a diffuser, but none in the door. If you put one in the door it will do no harm, but put it in before you begin the work described below, and then always use it thereafter. The thing that is necessary is to have the same relative amount of light passing through the negative and through the open door, the relative amount always the same. I would advise none in the door, as it is not only unnecessary, but an added trouble and expense.

I have found that f-11 is a good stop to use with bromide paper. On cloudy days it is a bit slow, but on bright days with the sun shining on my ground-glass diffuser, it is as fast as I care to work. I always use this stop, hence I have another constant factor.

Now, by experiment, make a correctly timed, one and a half diameter enlargement, using stop f-11, and note the time of exposure. Then take the same negative and a piece of the same kind of paper on which the enlargement was made; and, using the same developer with which you developed the enlargement, and by another experiment find the distance back from your source of white light in which a properly exposed contact print can be made in the same time the enlargement was made. For instance, if the time for the enlargement was, say fifteen seconds, open the door for the white light and find by experiment

A HALF-TON HAUL

how far back from it you must work to make a contact print in fifteen seconds, with the same negative and same sort of paper and same developer used before. Three or four trials will be sufficient. Then note the distance from the printing frame to the source of light, and the position of the frame in relation to the light, whether it be above, below or to the side of the source of light. Whatever position you have used for this experiment, use it always, then it becomes a constant. There is a constant relation between the amount of light which enters the enlarging contrivance and the amount of light that fell on the printing frame in which you have made the contact print. To vary this position would vary the amount of light used in making the contact print, and to do this would

A RATHER SMALL CATCH

be to disturb this constant relation. This would be fatal to the working of the meter.

By reversing the process, the time required to make a contact print from the negative to be used for enlarging on the kind of paper to be used for the enlargement at this predetermined distance and position, will be the time of exposure for a one and a half diameter enlargement, using stop f-11, the same developer being used in both instances.

Those using electricity can, by opening the door of the electric lamp house or working directly in front of the lens, find the distance for a contact print which will require the same time of exposure that a one and a half diameter enlargement requires.

All the rest is a simple computation by the following formula: the exposure time of the contact is to exposure time for the enlargement as 2.25 is to the square of the diameter of the enlargement to be made. The formula is arrived at by the substitution of 1.5 squared. Or you can use the following table and save yourself the calculation. The upper row of figures is the diameter of enlargement to be made, the lower row is the factor by which the contact exposure time is to be multiplied. The product will be the exposure time for the enlargement.

Diameter ..	1½	1¾	2	2¼	2½	2¾	3	3¼	3½	3¾
Factor	1.00	1.36	1.78	2.25	2.78	3.36	4.00	4.69	5.44	6.25
Diameter ..	4	4¼	4½	4¾	5	5¼	5½	5¾	6	6¼
Factor	7.11	8.03	9.00	10.03	11.11	12.25	13.44	14.69	16.00	17.36

This table gives the multiplying factors in decimals for the sake of exactness, but one can safely use whole numbers and fractions, as 1, 1⅓, 1¾, 2¼, 2¾, 3⅓, and so on for simplicity, because so far as I have observed, the latitude of papers will care for all this and more.

If you wish to vary the stop, you will have to multiply the exposure time for the enlargement by the inverse ratio of the stop to be used as compared to the stop used in the original experiments. I have never seen a table of the relative sizes of working apertures, and so cannot offer any help here. For the slower papers, the largest stop is the most convenient, as a long wait in the darkroom is tedious. You will not care to use every stop marked on the shutter, any how. As it is but a matter of a few trial prints, determine what other stop or stops you may wish to use, and then determine for each, its distance back from the white light, as you did the first time.

Since different kinds of negatives require different lights, as Mr. Clute pointed out in the March issue, the soft, thin negatives are best done in the morning when the sun is not so bright, or when the day is cloudy, and the hard, brilliant ones can be used when the light is strong.

A larger or smaller door for the white light would simply involve getting farther back or closer to such opening to secure the same time of exposure as the enlargement requires. In my own case, with my 8x10 opening as a source of white light, I work at six feet distance to get the same exposure time as is required with one ground-glass and stop f-11.

My enlarging easel works on a track made of a piece of three-inch flooring board, screwed to the wall, tongue side up. The groove of another and shorter piece slides on this, and to this last the easel is fastened, the whole folding back against the wall when not in use. Both the camera and this track are arranged at an angle of thirty degrees, in order to get the unobstructed light from the sky. There is, of course, no direct sky light reaching the contact print. And then again, I not only work this meter when the sun is shining on my ground-glass diffuser, but in the morning as well, when there is no sun on it.

In making an enlargement, the f- value of the stop does not vary with the size of the enlargement, as some might suppose. We do not reckon this f- value from the easel side of the lens, but from the negative side, from which comes the "power" for the printing. And as the lens moves nearer the negative the stop becomes of greater f- value as the diameter of the enlargement increases.

I often run off a dozen or more enlargements and never think of making test contact prints, but it is a matter of only a few minutes to do this and the light does not change appreciably in so short a period. Personally, I have found the making of a contact print and the bit of multiplying that is usually done mentally, immensely easier and quicker than making test prints or "pilots" by way of the enlarger. The whole process of finding the exposure time never requires more than a couple of minutes. The other takes considerably longer and takes a good deal of the joy out of life.

I would be pleased to hear from any reader who may try this meter, and if I have not made the matter plain, I will try to explain further. If it does not seem to fit your case, perhaps I can help you adapt it to your conditions.

Again, the better pictures do not make their beauty felt so rapidly on those who have never seen them before, as pictures of more flashy or vulgar attractions; the latter would therefore be frequently chosen.—RALPH RADCLIFFE-WHITEHEAD.

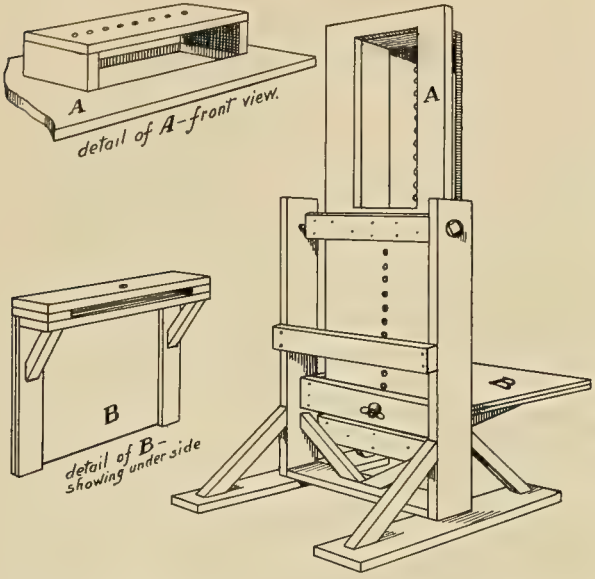
An Inexpensive Copying Stand

By Joseph T. Nunes

With an Illustration by the Author

Despite the fact that I am very far from being a mechanical genius, I am always trying to devise something that will save both time and money in my photographic work; and, while my latest achievement, a copying stand, may not be an ideal piece of apparatus, it answers the purpose for which it was designed most admirably. Pinning the picture to be copied up against the wall, does not always give the best light, and the practice is somewhat detrimental to a plastered wall such as most houses afford. Some sort of a copying stand is therefore desirable.

Being a most persistent accumulator of odds and ends that "may some day be of use", a nice new, three-eighths inch bolt, twenty inches long was available, as was also a three and one-half foot piece of 1x12 dressed lumber and two twelve-foot pieces of 1x4, also dressed. The length of the bolt and the size of the wider board determined the dimensions, in my case, but there is no good reason why such a stand cannot be built larger or smaller just as seems to best suit the requirements of the one using it.



One of the 1x4 pieces made the two side uprights, the connecting piece at the bottom and the two feet that keep the stand from tipping over. The uprights are thirty-six, the connecting piece seventeen, and the two feet twenty-four inches long. That part of the easel that forms the slide is made of two seventeen and two two and one-half inch pieces (thirty-nine inches in all), of the same 1x4 material that has had one inch ripped off the side leaving it three inches wide. Forty-seven inches of the 1x4 was ripped into a 1x1½ and a 1x2½ strip, the latter making the sixteen-inch strip covering the bolt, the cross piece near the center of the uprights, and the stop piece shown just below the easel or copyboard. The 1x1½ strip was used to form the braces or struts at the bottom of the uprights and on the under side of the easel. This last, the easel proper or copy board, is a solid piece, 17x17, part of an empty "Gold Dust" box, two thinner strips from the same source being nailed along the under side of the two edges, to prevent warping, as shown in sketch B herewith.

Another twelve inches of the 1x4 material was sawed in two and used to support a piece similar to the one cut out and shown as raised above the level of the 1x12 base board, this raised support bringing the camera up where the lens would be nearer the center of the easel or copy board, as shown at A in the sketch. This raised portion of the base board is six inches wide and about eighteen or twenty inches long, and carries eight or nine holes spaced two inches apart, for the tripod screw. These I bored, with a half inch bit, just sufficiently deep to let the tripod screw extend through enough to hold the camera, finishing them with a three-eighths inch bit, afterwards countersinking iron washers over each one to prevent the shank of the screw mutilating the wood.

The other holes, the ones in the other end of the base board, were bored with the three-eighths inch bit, one inch apart, these holes taking a bolt that

passes through the sliding part of the easel, holding it, with a winged nut, at any desired distance from the camera the size of the copy might demand. In the under side of this base board, about sixteen inches from the end that carries the camera, I chiseled out a groove to accommodate the bolt on which the board swings, nailing over the bolt the sixteen-inch piece of 1x2½, as shown, to hold it in place.

The drawing herewith should make the whole thing quite clear as to the construction. The only part not shown in the sketch is a strip of board that should have one end hinged to the connecting piece at the bottom of the uprights; this strip to be turned up out of the way when working vertically and its end brought forward to support the easel end of the base board when working horizontally or with the base board at an angle. I might mention also that the measurements given are based on the supposition that the lumber is one inch in thickness, when in reality it is a little less, by reason of the surfacing; but this makes no difference except in the case of the cross piece near the center of the uprights, that piece being a little less than the nineteen inches allowed.

I have, in this description, simply tried to show how easily and at how low a cost a very handy and convenient copying stand can be constructed, leaving it optional with the reader who may want to construct something similar, just how far he departs from the size and proportions given. These last, as I have explained were determined, in my case, by the size of the bolt and the pieces of lumber that I happened to have on hand and available for the purpose.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

COCKLING IN MULTIPLE MOUNTING: Recently I had occasion to prepare quite a display of 8x10 prints, double mounted, for my show case, and remembering a suggestion I had read years ago, proceeded as follows: The print was first laid down on the first sheet of mounting paper and a pin prick made at each corner. Then, with a straight edge and a sharp knife, cuts were made, diagonally, from one corner to the other, forming an X as it were, the ends of the two cuts not quite reaching the pin pricks indicating the corners of the print. The print was pasted only at the edges, laid down quickly so as to register with the pin pricks, and rubbed into contact before the paste has time to cause much expanding of the print. The drying occupied but a few minutes, when the first or border mounting was trimmed and attached to the next or principal mount as usual.—C. V. B., New York.

CARRYING THE CAMERA: I like to carry my pocket kodak with me wherever I travel, but despite the fact that it will go in an ordinary pocket, I do not like the bulge it causes. So I had a small bag made for it, one fitted with a

shoulder strap made of folded cloth, so that it could be carried slung to the side where it is under the coat, out of sight and out of the way.—Y. H. N., Maine.

AVOIDING HALATION: My plan for avoiding halation in my interiors is to give good long exposures and then use a strongly concentrated developer. Working in this way, the image starts to appear all over the plate, and as soon as the principal high-light shows through on the glass side of the plate, it goes into the fixing bath. I find this an almost perfect prevention of halation, a fault that we all know is greatly augmented by making the exposure so short that protracted development is indulged in in the hope that full detail will be brought out.—W. E. R., Tennessee.

INTENSIFYING WITH MERCURY: I have recently tried a plan recommended in the *British Journal Almanac* for avoiding pinholes in mercuric intensification. When the saturated solution of mercuric chloride is made up and allowed to become cold, the clear portion is poured off and enough acetic acid added to give it a decided odor. This is always filtered before being used and when the ammonia is applied, it is in the form of a very weak solution, later strengthened if necessary. The pinholes that previously bothered me have, as a result, entirely ceased to appear.—A. S. D., Florida.

MAKING WHITE BACKGROUNDS: For a long time I tried to improve the density giving power of my white background by lighting it as strongly as I could from the front, but doing this often interfered with the desired lighting on the subject itself. Then the thought came to me that I might use a ground more or less transparent and give it added strength by lighting it from behind. The plan was tried with very good success. Of course one must so arrange matters that the light is thrown on the back of the ground at an angle, as a strong light thrown through the ground in the direction of the lens would not be satisfactory. This, however, is not hard to do, and in my case was achieved by cutting a window in the side wall just back of the skylight where the light admitted flooded the space behind the ground being used for my light background effects.—E. D. C., Vermont.

DEVELOPING POWDERS: One of my customers asked me if I could put up some developing powders for him to take with him on a trip through the West. The following formula was used:

A:	Hydroquinone	12 grams
	Metol	6 grams
	Potassium metabisulphite	2 grams
B:	Sodium sulphite, anhydrous	35 grams
	Potassium carbonate, anhydrous	90 grams
	Potassium bromide	1 gram

These were put into small vials; first seven grams of B, then a plug of cotton, and lastly one gram of A, and then tightly corked. Each vial containing enough developer to make from six to eight ounces of an excellent developer. My customer reported that the developer so made worked excellently; in fact, he has asked that I prepare him a new supply in bulk so that he can measure out the required amount for use in his home dark-room.—A. S. D., Florida.

CAMERA CRAFT
A PHOTOGRAPHIC MONTHLY

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The Sixth Pittsburgh Salon

The comments on this last exhibition, prepared for our pages by Mr. Edwards, will, we trust, find favor in the eyes of our readers as a departure from the regulation cataloging of names of exhibitors and their picture titles. In writing as he does, Mr. Edwards has had in mind the desire of the average reader to learn something of the plan on which these exhibitions are conducted and to gain some knowledge of what is required of the successful exhibitors, those whose pictures are honored by the acceptance of the jury of selection. It is, of course, impossible to give a formula for the production of salon or exhibition pictures, but so far as it is possible to advise an aspiring photographic worker, Mr. Edwards has placed our readers in his debt. Himself a worker of the most painstaking as well as unselfish character, his aim has always been to advance the standing of pictorial photography both by striving to make his own work better and by helping others to do the same. For this reason we bespeak for his observations on the Sixth Pittsburgh Salon an appreciation that we could hardly ask our readers to extend the usual "report" given as covering such events.

We might, however, as a slight concession to the traditions, be excused for ourselves mentioning a few of the pictures that originated here on the Coast and which were reported to us as appealing most strongly to a correspondent whose opinion, were his name made known, would have considerable worth attached thereto. He wrote us during the exhibition, saying that John Paul Edwards' six pictures were all good except "West Wind"; Laura Adams Armer's "Springtime" was good; all six of Weston's good; Ford Sterling's all fine; all of Frank Hennies' good; Louis Fleckenstein's "Portrait—Miss Lucy S."; good; Alice Burr's "Above the City's Smoke" good; Arthur Kales, "Jewel of Asia" fine; all five of Margarethe Mather's fine; and E. M. Pratt's "Sunburst on the Pacific" fine. It is not quite clear from his letter whether the distinction between "good" and "fine" is a real one or simply the use of the different words to avoid monotony; in fact, we believe that no distinction was intended and the pictures mentioned were those that he found alike interesting above the general average,—by no means a low one, of the entire exhibition. The letter being a personal one and the doubt expressed above remaining, the list of commended pictures is offered without the name of our commentator, as the best available for the purpose pointed out.

One Of Our Shortcomings

From time to time we are told that one fault our magazine has is the little space given to the beginner, and we are forced to admit that the criticism is a just one. On the other hand, would we not be open to a more serious one were our space more freely given to such matter, matter that can be found

within the pages of a dozen or more very inexpensive and easily obtainable handbooks, written specially for the beginner? At the most we could only devote a portion of our space to such elementary instruction, and doing that we would be making our usual contents so varied, would be catering to so varied a clientele that our magazine would have but little appeal to any one particular class of photographers. We try to give our readers such matter as is not easily obtainable from other sources; the practical, every-day experience and the methods acquired therefrom, of practical workers in both the amateur and the professional field; practiced workers as distinguished from practiced writers. We believe that so doing, even to the extent of making it necessary for such of our readers as need elementary instruction to purchase one or more of the elementary handbooks every dealer carries, is the plan that will suit the largest number. Filling a number of pages with matter intended for the instruction of the beginner, the one who has just purchased a camera, would be a very simple matter, but would our so doing best serve the interest of the very class such instruction would be calculated to help? We fear not. This month the reader would have the advice of one writer, next month that of another; that is, except as we adopted the series form. In the latter case the reader would have all the information from one source, but in order to have it in desirable or available form he would have to secure the back numbers involved at the time he subscribed. Even then he would not have the matter in anything like the convenient and accessible form that he would were he to invest from twenty-five cents to a dollar in a good handbook or two covering the elementary instructions that he, as a beginner, needs.

And to the occasional reader who complains that, as he is only a beginner, he finds our pages a little too advanced, let us suggest that the likelihood of learning, the possibility of making progress, is increased by acquiring information in advance of one's present knowledge of any particular subject. A reader, for example, may not be in a position to take up carbon printing through a lack of experience with the more simpler photographic manipulations, but reading concerning this same process will benefit him by giving him an idea as to the direction in which his amateurish efforts must be directed, as well as by giving him an idea as to what lies further ahead for his consideration. And in addition to this, the acquaintanceship gained, even in advance of its actual need, will make the work, when later undertaken, much more inviting and much more certain of success. And the same can be said of anything that may be alike seemingly too advanced for any particular reader. It is, of course, quite obvious that we cannot avoid publishing quite a few articles that do not have a general interest, articles that can be interesting only to photographers engaged in certain branches of work; but to avoid publishing articles of a too advanced nature for some of our readers would mean the making of our magazine little more than a reprint or rehash of the contents of the many available handbooks dealing with photography, and such a magazine would hardly serve the purpose we have in view.

But who can paint like nature? Can imagination boast, amid its gay creations, hues like hers?—James Thomson.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Gum-Printing On Bromide

T. H. Greenall, writing in *The Amateur Photographer* (London), gives practical working details of a new method, founded upon the copper-ferrocyanide process, of making prints in pigment on a bromide paper base. The process is one that suggests great possibilities in the direction of personal control, and should therefore appeal to every pictorial worker. He says: If a bromide print be coated with a suitable colloid, and then treated with a copper toning solution containing potassium bromide, not only is the print toned red, but a facsimile of the image, in copper ferrocyanide, is formed in the colloid coating superposed on the bromide image beneath. If the print is then placed in water at a suitable temperature, it will be found that the portions of colloid which have become impregnated with the copper ferrocyanide are insoluble, and remain attached to the print, whilst the rest of the colloid dissolves away.

From this it is obvious that if we mix, say, lampblack with the colloid with which we coat the print, we may, after treatment with the copper solution, develop with warm water, and obtain an image in lampblack, mixed with some copper ferrocyanide, superposed on the bromide image, which may be redeveloped underneath.

In the result we have a bromide print, intensified by a deposit of lampblack, which is capable, whilst in the moist condition, of a considerable amount of local control, and possesses a character different from that of an ordinary bromide, approaching, more or less, that of a pigment print, according to the amount of pigment deposited.

The bromide for this process should be preferably matt, since the colloid is apt to become detached in places from glazed surfaces during development. The print must be exposed and developed for full detail in the high-lights, otherwise, after intensification, it will look harsh. On the other hand, a veiled, over-exposed print is unsuitable, The emulsion of the bromide paper must be hard enough to bear immersion in water at a temperature of one hundred degrees Fahrenheit. If a hardening bath is used, the alum or other hardening agent must be well washed out, or it will affect the colloid coating.

The colloid which I have found most satisfactory consists of a mixture of sixty minims of gum arabic mucilage containing fifteen per cent of gum, forty minims of gelatine solution prepared by dissolving ten grains of culinary sheet gelatine in two drams of warm water, and eighty minims of solution of dextrine prepared by heating together forty grains of white dextrine and twenty grains of sugar with four drams of water until the liquid is clear.

The mucilage of gum arabic is prepared by placing seventy grains of gum arabic, in small fragments, in an ounce bottle filled up with water, so that no air space remains, laying the bottle on its side, and turning it over occasionally until the gum is dissolved. The pigments are mixed with the colloid mixture, which should be not more than a few days old, on a sheet of glass, with the aid of a thin flexible table knife. For a black print, we may take one and one-fourth grains of vegetable black and two and one-half grains of ivory black, mixed, in three drams of colloid, or one and one-half to two grains of vegetable black alone in three drams of colloid. Other black pigments are powdered blacklead and lampblack, which may be mixed or used singly.

For a print which is intended to be sulphided, we may use seven and one-half grains of ivory black alone in three drams of colloid, or, for a warmer and more transparent brown, a mixture of six or eight grains of bone brown with one and one-half grains of ivory black in three drams of colloid.

If the tones obtained on sulphiding are

inclined to be purple, which is the case with some bromide papers, it may be necessary to use ivory black with a trace of Indian red. It is essential that the coating should harmonize in color with the bromide print in the final result.

The print must be dry, and then surface damped just sufficiently to make it lie flat. If too wet, it will absorb the gum, whilst if the print is dry the mixture will not spread easily. The coating mixture is warmed in a water bath until it is as thin as office gum, and then spread as thinly and evenly as possible, allowing from one-half to three-quarters of a dram for a 5x7 print. I use a very soft flat hog-hair brush for spreading, and follow with a badger softener. If the photographer is not the owner of a badger softener, a flat camel-hair may be used instead.

All the shadow detail should show fairly vigorously through the coating, otherwise there is too much pigment present, and the shadows will be flat, particularly if the print is to be sulphide toned. On the other hand, for special effects more pigment may be used and the shadow detail sacrificed, those parts which are required being lightened locally.

The print is then pinned up to dry, and will be ready in about an hour for treatment with the copper solution, which is similar to that given in my previous article, but is used in a more dilute form.

A: Copper sulphate .....2 grains
Sodium or potassium citrate .....8 grains
Water .....2 ounces
B: Potassium ferricyanide ....4 grains
Potassium bromide .....2 grains
Water .....2 ounces

For use take two drams of A, two drams of B, and four to eight drams water.

The stronger the solution the heavier and more general is the deposit of pigment, the half-tones developing with difficulty. The weaker solution permits the half-tones to be cleared easily. Still clearer half-tones are obtained by using twice the amount of sodium citrate.

The print is placed face upward in a dry dish, and the surface flooded with solution, allowing about twelve drams of the weakest solution for a 5x7 print, which quantity should do two prints in succession. We must bear in mind that the print surface must not be touched whilst in the moist condition. The solution is allowed to act for from one and a half minutes to two minutes: it is then poured off, and the dish filled up with water.

The print is next treated with successive portions of water gradually increasing in warmth, starting at eighty degrees Fahrenheit, which is lukewarm. The increase in temperature must be very gradual, as the print may develop at eighty degrees or less; on the other hand, a temperature of ninety-five degrees may ultimately be required. The high-lights are the first to clear, followed by the half-tones. A few minutes suffice for the operation.

Local development can only be attempted with considerable risk at this stage as the image is very delicate; but if a print is spoilt the whole of the gum may be wiped off and the print redeveloped to be used again. The simplest method of local treatment consists of allowing cold water to drop on any part which it is desired to lighten. This is done as the print lies under water in the dish.

It is then necessary, unless the print is to be sulphide toned, to redevelop the slight amount of silver which has been halogenized by the copper solution. Any ordinary developer, preferably free from bromide may be used. If the print is to be sulphide toned it is not necessary to redevelop, but it is necessary to get rid of the copper in the print.

The print is first immersed in cold water, and then, in a cold dish, is treated for from one to two minutes with about two ounces of water containing one grain of caustic soda in the ounce of water. This is poured off, the print is rinsed, and then treated with hydrochloric acid, ten minims of strong acid in one ounce of water. It is washed in several changes, and is ready for bleaching and sulphiding in the usual way. The acid dissolves the copper hydroxide formed by the action of the caustic soda.

I may say that I have tried to replace the caustic soda with carbonate, but without success. The copper, if not eliminated, gives an unpleasant rusty yellow sulphide tone, but if the above directions are carried out the final tone will be exactly as though no copper had been used.

A simpler way of eliminating the copper,

applicable only to redeveloped prints, is to treat the print, after the redevelopment, with a solution of potassium cyanide, about five grains to the ounce. This, however, is not applicable to sulphide toned prints, which are reduced by cyanide.

In regard to sulphiding, I may say that all the usual bleaching solutions have been tried with equal success. Naturally, however, one should be careful not to use too strong a solution of sodium sulphide, owing to its softening action.

The print may then be allowed to dry, further local treatment being done with a brush as the pigment sets. If the print, when dry, appears too heavy, it may be further developed with hot water as before. Spotting may be done on the damped, or dry, print with a little of the pigment employed for the coating, thus ensuring an absolute match.

Finally, if the bromide original had a glazed surface it will be necessary to polish the final result with a soft rag to bring the character of the surface of the matt coating into harmony with that of the clear lights.

A New Color Process On Paper

That color photography still exercises a potent spell over the public mind was evident from the crowded house of the Royal Photographic Society at the last technical meeting when S. R. Williams brought forward a process, new in part, for preparing prints on paper in natural colors. Mr. Williams has brought the Lancashire knack to the solution of some knotty problems, and it was the exhibition of his true amateur spirit as well as the excellence of his results that so greatly commended him to his London audience.

A new feature of this process, he claimed, removed an outstanding objection to the usual method of three-color work. The ordinary way of attempting three-color photography consists of making three separate exposures on three separate plates with three separate filters, and obviously its application is limited almost entirely to still life, for the three separate exposures put such subjects as portraits and landscapes with clouds out of court. Various methods have been tried for overcoming the disadvantage, some of which depend upon an ingenious arrangement of mirrors so as to obtain the three exposures at once, but Mr. Williams urges that the mirror arrangement fails to eliminate stereoscopic difference. It occurred to him that a simpler method of working than the use of a complicated camera would be to have a three-color filter on the same principle as that used in the transparency processes of Paget and Lumiere, so as to get all the three color impressions at one exposure on one plate. Two important conditions to fulfil are, first, that the three-color screen must be of such a character as to enable a separate print readily to be made from the parts filtered by each of the three colors; and, secondly, that the color elements shall be sufficiently fine to give the effect of a continuous picture.

So far as he knew, there was no color screen on the market which fulfilled these conditions, and therefore he set about making his own. He succeeded, working more or less with home-made tools, in making a screen with the three colors alternating in the form of straight lines, one hundred and eighty to the inch in each color, or five hundred and forty to the inch in all. On exposing a panchromatic plate behind such a screen, one-third of the plate, the parts that come behind the red lines, will be filtered by red, and the others in the same way by green and by blue. Thus, it is possible, given the conditions just stated, to get an equivalent of these three colors in black and white, or in colors complementary to those on the screen, the three impressions being obtained on one plate at one exposure.

In order to make the prints, a key-plate is necessary, consisting simply of black lines and clear spaces, the black lines being one hundred and eighty to the inch, but each of them twice the width of the clear space, so that on putting the key-plate in contact with the screen and sliding it over the screen he could get the single red or blue or green impression, owing to the fact that the black lines covered two of the color elements, while allowing the third to show through the interstices; and on using such a key-plate in contact with the negative which had been exposed behind the screen it would sort out those elements in the negative which had been filtered by each color, the key-plate being shifted as required for the three separate printings. His devices for securing proper mechanical adjustment of the key-plate, and also for learning which parts of the negative he was covering over, would take too long to describe, even were it pos-

sible to describe them without illustration, but they appeared to answer their purpose. In reply to a question he said that the speed of the plate with this screen in position was about eight times as fast as the autochrome plate.

From this stage it was possible to work by ozobrome, pinatype, or any similar method. He himself used bromoil, and the pictures he showed to demonstrate the validity of his results, very successful on the whole, were all made by that method. The three prints were bleached for bromoil, and then inked up with appropriate printer's ink applied with the brush. The yellow print was first inked, then placed on a piece of plain drawing paper and subjected to pressure, the blue then similarly pigmented, placed in register on the yellow transfer, and again subjected to pressure, and finally the red print, after pigmenting, was placed upon the top of the paper, which already bore the two other impressions, and, after being again subjected to pressure, gave the finished result.—*Amateur Photographer.*

Photographing With The Microscope

J. E. Barnard, president of the Royal Microscopical Society (London), expounded to a crowded audience at the Camera Club (London), some of the secrets of photomicrography: and his thoughful address, which was not overladen with technique, must have given to many ordinary photographers a new insight into the difficulties of their brethren who hitch on the microscope. He made it plain that the limiting principle in photomicrography is neither the skill of the operator nor even the capacity of the objective, but the physical fact that light has a definite wave-length, and that it is not possible to resolve an object which is finer in detail than the wave-length of the light which is used to illuminate it. The ordinary photographer, as Mr. Barnard pointed out, is concerned, generally speaking, to get a correct rendering so that his picture represents what the eye sees. The photomicrographer, on the other hand, is not concerned at all about the exact representation of colors so far as their luminosity or visual value goes; he is concerned only with getting contrast enough to show the contiguous details: and contrast screens extending over the whole range of the spectrum are often used for the very purpose of getting the exact opposite of the natural representation. The ordinary photographer, again, has at his command a certain power of photographing the depth of an object, but this is denied to the photomicrographer; and the better photomicrographer he is, the less likely will he be to attempt to photograph more than one plane at one time. Mr. Barnard did not agree that the easiest way of doing photomicrography is necessarily with the most elementary tools. If the work is to be done with precision it needs more elaborate apparatus. The great thing to aim at is to avoid vibration, by having the appartus on the girder principle, strutted and braced together in all directions, so that if one part vibrates the other parts vibrate with it.—*Amateur Photographer.*

Electricity and the Latent Image

Dr. H. S. Allen, in his lecture at the January meeting of the Roentgen Society (London), elaborated the interesting theory that electricity may account for the latent image. Light is well known to excite in certain substances a separation of electrons. In most cases these electrons return almost at once to the parent atoms, and thus give rise only to fluorescence. In other cases, they return more gradually, being caught and held for a time by the surrounding molecules of the substance: and thus we have phosphorescence, which is distinguished from fluorescence, in that it continues for a time after the exciting cause has ceased to operate. In yet other cases there is such a thing as delayed phosphorescence, which means that the electrons, having been separated from the parent atoms at the shock of light, become attached to other atoms or molecules, and require some outside stimulus before they can be released. This purely physical change, which supposes the latent image to be simply a collection of ionized molecules, may account for that phenomenon. An analogous action occurs in the case of visual after-images, the original excitation of the retina being due to the separation of electrons, and the after-image to their return. But here there is no equivalent for the latent image, unless it is the memory picture; but memory itself may be proved to be electrical in character one of these days.—*Amateur Photographer.*

Kerotype Paper

A demonstration by Messrs. Kent and Middleton of a new photographic printing material was recently given before the Royal Photographic Society. The material, just being introduced upon the market, is known as Kerotype paper, and consists of photographic paper base waxed by impregnation with paraffin wax, then coated with a special substratum, the subject of a patent, and then with bromide or gaslight emulsion. The paper is designed for transfer of the emulsion image to all descriptions of surface, such as paper, wood, metal and fabrics, such as silk or satin. The paper is made of three degrees of speed —namely, slow bromide for contact prints, rapid bromides for enlargements and gaslight. Its chief recommendation to the professional or amateur photographer is that by the use of a single sensitive material prints of very great variety of tint or surface-texture can be prepared by transfer of the image to plain papers such as are available in even greater variety than those supplied ready coated with emulsion at the present time by manufacturers. The paper is exposed and developed in exactly the ordinary way. If transferred to its new support by a single transfer method, the image is, of course, reversed. This disability can be avoided by exposing the paper through the waxed support instead of with the emulsion coating in contact with the negative. A very slight degree of diffusion is introduced by this practice. Mr. Middleton handed round comparison prints, the difference between which was scarcely discernible. In enlarging, of course, this necessity is dispensed with by placing the negative in the reversed position, whilst film negatives may be printed with the plain side in contact with the emulsion surface of the Kerotype paper. Even if it is preferred not to resort to these expedients, the paper can readily yield unreversed plates by a comparatively simple process.

It will thus be understood that the novelty in practice connected with the new paper lies in the operations by which it is transferred to various supports. The image on the developed prints, owing to the semi-transparent nature of the waxed paper on which the emulsion is coated is of a flat and lifeless appearance, and does not attain its full rich vigor and gradation until after transfer.

Mr. Middleton, in the course of a demonstration extending little over an hour, showed the different processes by which the paper is handled, according to the surface on which the image is to be transferred and the choice or otherwise of double transfer.

For single transfer to a plain paper support—probably the process which will be most frequently adopted in the use of the paper—the developed, fixed, and washed print is slightly blotted off between sheets of blotting paper and then dabbed over in quite a random manner with a weak, warm solution of gelatine. The paper and print are then brought into contact by light squeegeeing, placed under pressure for a minute or two, and then hung up to dry. The waxed paper can then be stripped off, leaving the picture upon its new support.

Transfer to semi-porous bodies, such as wood, is made by coating both the print and the surface to which it is to be transferred with a little of the gelatine solution, squeegeeing the two into contact, and stripping away the back support after drying. For transfer to metal and similar surfaces which are quite impervious to liquid, the surface is coated with a gelatine solution made with the minimum quantity of water, and containing as much methylated spirit as can be added without throwing down the gelatine. The wet print is dabbed over with a plain gelatine solution, placed in contact with the metal surface, squeegeed, and again stripped after drying.

Mr. Middleton likewise showed the very simple procedure for transferring the image from the dry print to fabrics, and he also demonstrated the use of a resinoid solution containing rubber, gum dammar, and gum elemi, which, as a means of carrying out certain of the transfer processes, is more convenient and rapid than the use of a gelatine solution.

Double transfer either to paper, wood, metal, or fabric is likewise very easily and quickly carried out with the aid of this resinoid solution, and though the descriptions of manipulation, when set down in cold print, appear to represent the process as involving a great deal of manipulation, it requires to be borne in mind that the demonstration showed all the variations of which the new material is capable, whereas the regular user would naturally confine himself to one or two methods only.

In reply to questions, Mr. Middleton said

that the prints should be toned before transfer. He said that transfer to glass for lantern slides or enlarged negatives was not practicable, as the transferred image then disclosed a distinct grain. In reply to an inquiry as to the price of the new paper, Mr. Middleton said that it was the same as that of ordinary bromide paper. "Pre-war," asked someone. "Give us a chance", replied the lecturer, to whom an enthusiastic vote of thanks was accorded.—*British Journal of Photography.*

Modifications of Sulphur Toning

At the opening meeting of the winter season at the camera club, Mr. Luboshez of the Kodak Company, gave a most instructive demonstration, dealing with modifications of the sulphide toning process for bromide and gaslight prints, and showed his audience how a variety of excellent tones, ranging from black to warm brown, could be obtained with the ordinary sulphide bath, and with a degree of certainty that was remarkable. He pointed out, first, that to obtain good tones of any degree of strength, no matter what color was required, it was essential that a good and strongly developed black and white print should form the starting point. It was entirely hopeless to wish for good gradations of tone in brown or sepia if the original print was not fully exposed and fully developed. The test of this would be to examine the print by transmitted light. If a good strong image is visible, showing an adequate deposit of silver, the subsequent toning becomes much easier and more satisfactory.

Practically any of the standard bleaching solutions for sulphide toning were suitable, whether made from the innumerable published formulæ or bought ready made in tabloid or tablet form. The same applied to the sulphiding bath, which could be either sodium or ammonium sulphide.

This bath, however, should not be used too strong, or it is apt to cause blisters. Straightforward bleaching of the well-washed print, followed by the sulphide bath, produced the familiar warm sepia color. To produce a richer color, a preliminary bath, in the sulphide solution, of the untoned print, followed by washing and bleaching, and then resulphiding, gave a distinctly different tone.

It was in the production of brown-black and rich dark sepias, however, that Mr. Luboshez's demonstration proved most attractive and instructive. His method, in brief, is to utilize a portion of the original black image in conjunction with the brown sulphide image produced by toning. To secure these effects, the print is given a very short treatment in the bleaching bath, which should be used more dilute to enable the action to be kept under control. The bleaching is allowed to proceed according to the degree of depth of tone required. The partially bleached print is rapidly washed and placed direct into the sulphide bath, and, according to the extent of the bleaching action, so the final color is determined.

A further modification of this method is to redevelop the bleached print, either wholly or in part, in a dilute amidol developer, and then to complete the development with the sulphide toning bath. A great levelling up of tones is possible by this method, in addition to the securing of fine color. Yet another variation is to redevelop the bleached print completely with the original developer, wash, and bleach, and then tone in sulphide. Mr. Luboshez rang the changes on all these methods with a remarkable facility, and produced a range of toned prints some of which had the full rich color of photogravure.

A further suggestion of a practical nature, one which tends to produce results of even greater brilliance in the depth of shadow tones and clear high lights, is to treat the fully developed print with a reducing bath of hypo and ferricyanide.

A bath of plain hypo, two ounces to the pint, should be prepared and kept in one dish; whilst in another dish a dilute solution of potassium ferricyanide should be placed. The print is first soaked in the hypo, and then transferred to the dilute ferricyanide bath for a few seconds, and back again to the hypo, the process being repeated until the desired brilliancy has been attained. The print is then washed and toned by any of the foregoing methods, and results of great beauty are thereby secured.

The production of a still greater range of tones, including that known as "red chalk," was described by the chairman. In this case, Schlippe's salt, sodium sulphantimoniate, was used for toning the print, which was first bleached in the usual manner. This salt could be used alone in solution, or, if it is preferred, in conjunction with sodium sulphide.—*Amateur Photographer.*

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Their Relative Value

Years ago I became acquainted with the peculiar impression given the average beginner by the descriptive matter published in the average dealers' catalogue. To explain, let us suppose our average beginner feels that he has outgrown his first rather inexpensive camera and contemplates investing in a new instrument, one that can boast a lens and shutter of more than ordinary capabilities. He reads over the descriptive matter in his dealer's catalogue and finds the maximum amount of lauditory phrases bestowed upon some fairly good rapid rectilinear lens that was popular years ago, and upon some shutter that is practically obsolete. And when he goes to this same dealer he is told that neither are what he wants, he should have such-and-such a lens and some other particular shutter. And such cases are not at all rare. The whole trouble comes in through our average beginner quite naturally supposing that the descriptive matter in the catalogue is at least the expression of opinion of some one capable party, if not of the dealer himself. Instead, this descriptive matter is generally simply a copy of the published claims of the different, individual manufacturers, copied more or less fully into the pages of the catalogue gotten out by the dealer. Taking the matter up with one of these dealers we found him willing to admit there was some inconsistency in the results secured by using the descriptions given by the several manufacturers, but he contended that to do differently would mean the tempering down of one maker's claims or the boosting up of another, both of which might be objected to by the respective manufacturers. Not only this, but so doing would put the dealer in the position of posing as an authority on the relative value of different cameras, lenses and the like, a position that he could hardly assume in so decided a manner as his printed catalogue would imply. So I suppose our "average beginner" will have to struggle along with the rather confusing descriptive matter that greets him from the pages of the dealers' catalogues, bearing in mind that if he finds one of the best anastigmats described in most modest terms and some "double meniscus" not only lauded to the skies, but priced at a fractional part of the former, he has really not discovered where the best is really the cheapest, but where descriptions of two different articles are hardly fair criterions of their relative value unless written by the same party.

Titles In Black Letters

A recent visitor came in to ask us about titling some negatives, and it developed that he wanted to know how he could so title them that the lettering on the print would come as dark or black letters on a light portion of the picture. He had read, somewhere, and he thought it was in our own pages, how this could be done by inscribing the titles with reducing solution instead of an ink or paint. At the moment we could not give him any specific advice; in fact, while we have read of such a method, we have a distinct recollection of some samples shown us, years ago, by another visitor, samples showing the poor effect he had secured by trying to employ such a method. Just recently another visitor brought in a clipping, covering the process, from some old magazine, in order to ask us concerning its feasibility. In these directions the reader is told to mix up a strong solution of potassium ferricyanide and use it as an ink in writing the title on a piece of smooth, glazed writing paper; this to be dried, then moistened on the back and applied face down to the moistened or dampened film of the negative, rubbed into contact for half a minute, the paper removed and the negative plunged into a fixing bath for a like time, or longer. This seems worth trying, as we should imagine that there would be less tendency for the

solution to spread and give softened edges to the lines, which last seemed to be the trouble with the poor results mentioned above. It would also seem that the addition of a little coloring matter to the solution would make it easier to see how the writing was progressing, without affecting the final results. The same clipping suggests that one might apply the same method to the use of the reversed rubber type that is offered for the making of titles in an opaque ink, by using a pad that had been moistened with the ferricyanide solution in place of an inked pad or roller. In the latter case the type impression would of course be applied directly to the negative film, and possibly the dampening of the latter either omitted entirely or made much less in extent.

What Is a Daguerreotype?

A visitor of a few weeks ago explained that he was making a most interesting collection of Daguerreotypes by searching through the stocks of the second-hand and auction houses. Not only did he have quite a number of examples, but he had several kinds. He was a little surprised to learn that there was only one kind of Daguerreotype, his idea being that anything that was put into the old-style, plush lined case was a Daguerreotype, this belief being a quite common one. Of course this does not invalidate the historical interest of the collection our visitor is making, but to call them all Daguerreotypes, indiscriminately, is a mistake. Daguerre's process consisted of a picture produced by the action of mercury on a polished silver surface, generally the silver surface being a coating on the surface of a thin brass plate. These pictures appeared as positives only when viewed in such a light that the polished silver portions reflected some dark object or shadow area, so forming the shadow portions of the picture; the highlights being the etched or tarnished portions resulting from the action of the mercury on the silver. Held so that the surface reflected a strong light to the eye and the picture appeared a negative. Positives on glass, backed up with various materials, soon followed, but these were produced by an entirely different process.

Making Large Enlargements

The first visitor of the two came in to ask me whom I could recommend to make a few enlargements for him, as he wanted some 12x15 in size, while his largest trays would accommodate only 11x14 paper. The next one to come in brought some 18x24 enlargements that he wished to show me, enlargements that had been developed on a large sheet of glass. And they were excellent enlargements. His method may interest others, even though it be nothing particularly new. The exposed print is placed on the sheet of glass and well sponged with water on both sides until it is quite limp. Then, lying on the glass face side up, it is first trained and then the developer applied with a soft sponge, the sponging being continuous and the developer used freely. No unevenness need be feared if ordinary care is used, in fact, the sponge method, used in connection with an occasional rinsing under a tap, enables one to exercise somewhat desirable local control where such seems advisable, as is often the case.

How To Acquire "Control"

We hear a whole lot about control in developing, control by variation in the exposure, control of the print, and control of the final results by this, that and the other method. And the subject is always an interesting one, particularly to the worker who is not satisfied with his results. He is prone to imagine that if he could master a few of these "control" methods, the making of good, even pictorial work, would be quite within his capabilities. But this is where a great mistake is made. If one wants to indulge in control methods it is, or should be, quite obvious that he must first be able to exercise that simple form of control that results in a good straightforward print from a technically good negative. One can hardly make intelligent use of the power to alter results by varying his exposures from the normal if he does not know what a proper or normal exposure is, and the same applies to developing and any of the other details entering into the production of a finished print. The truth of the matter is, the learning of control methods must start with a very simple lesson, a lesson that must be thoroughly learned before progress can be made, namely, the knowledge that will assure a proper carrying out of all the steps leading up to the simple photographic results known as a good print from a good negative

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Post card and smaller, developing papers, of mountains, lakes, and marines; for foreign views or strange and different ones nearer home, post cards, etc. Class 1.

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Standard size stereoscopic, various papers, of scenic, landscapes, and various other subjects; for the same or anything interesting. Stereoscopic views only. Class 1.

RENEWALS

744—Frank L. Church, 550 Maple Ave., Herkimer, N. Y.
4x5 and smaller, of general views; for war views, bathing girls, or wild life in Africa, Mexico or our islands or like subjects.
Class 1.

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2½x3¼, post cards and 5x7, developing papers, of views of New Zealand scenery, mountains and lakes, native life and nude; for bathing girls, nudes, mountain and other scenery of general interest, also stereos.
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Post cards of general views; for the same.
Class 1.

3329—George R. Bunn, 1571 W. First St., Los Angeles, Cal.
Have over 3000 negatives, 3¼x5½, of California mountain and seashore scenery, National Parks, Big Trees, cloud effects, some of the grandest and wildest scenery in the U. S. to exchange for wild and artistic scenery, genre and miscellaneous. No post cards, soft matte surface prints preferred. Class 1.

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Class 2.

1136—C. E. Fey, P. O. Box 25, Laramie, Wyo.
3¼x5½ and smaller, various papers, of largely mountain scenery; for mountains and sea, Hawaiian and East Asian. No post cards.
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4x6, various papers, of bathing girls, nude and draped subjects; for the same. Class 1.

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3¼x5½, 5x7 and smaller, various papers, of miscellaneous subjects; for the same.
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2¼x3¼ to 3¼x5½, various papers, of views, street scenes, genre, bathing girls, nudes, draped and undraped figures; for the same. Prints only. Class 1.

4492—Lorimer Courtney, 2 Hobson Ave., Worcester, Mass.
2½x4½ and larger, developing papers, of landscapes, wood scenes, and bathing girls; for the same. Class 1.

CHANGES OF ADDRESS

777—Herbert R. Gregg, Oroville, Wash.
(Was Portland, Or.)

2990—Jas. L. Vaughan, R. F. D. No. 1, Belvedere, N. Y.
(Was Kensington, Ohio.)

4172—J. C. Flint, 596 42nd St., Oakland, Cal.
(Was 687 61st St.)

4486—Ev Tejeda, P. O. Box 484, Tampico, Tamps., Mexico.
(Was Box 500.)

4517—Russell K. Nakata, 1902 Chestnut St., Philadelphia, Pa.
(Was Harrisburg, Pa.)

4546—George Barcey, 408 North 27th St., Camden, N. J.
(Was Coatesville, Pa.).

4595—L. H. Cobb, Louisburg, Kas.
(Was Circleville, Kans.)

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

Utah Camera Club

In line with its policy of seeing the work of the leading pictorial photographers of the country, the Utah Camera Club is showing an exhibit of carbon prints by W. H. Porterfield of Buffalo, New York, a worker who is well recognized as one of the formost pictorial photographers of the country. Mr. Porterfield's exhibit is one of strength and beauty comprising as it does many of his pictures that have been hung in the leading salons of the world. While only in the third year of its activities, the Utah Camera Club is a live organization that is doing much to stimulate the interest of its members in pictorial work. It will hold its Third Annual Exhibit this month.

Chicago Camera Club

The Club's new quarters in the Northwestern University Building, Lake and Dearborn Streets, affords greatly increased floor space and the ingenuity of the members has resulted in an arrangement of laboratories and studio that gives the most use of their equipment.

In the laboratories the members can indulge in any sort of photographic practice. Cooper-Hewitt tubes are available for printing-out paper, while three arc equipped enlarging cameras, taking up to 8x10 negatives, permit the bromide worker to enlarge to the limit of his pocketbook. Tanks for both plates and films, printing machines, print trimmers, dry mounting presses and a host of other utilities go to make up the equipment. The studio is equipped with a modern 8x10 studio camera, Cooper-Hewitt tubes and a powerful nitrogen filled tungsten, besides the usual outlay of studio accessories. The increased wall space will enable the Club to show to better advantage the many choice exhibits for which arrangements have been made.

California Camera Club

At the regular monthly meeting on the evening of April eighth, the annual election was held, resulting in Dr. E. G. Eisen being made president, and J. H. Hornell, secretary; equally happy and satisfactory results being achieved in the matter of the other offices and committees. A hiking outing to Rock Springs the following Sunday was well attended by the members and their friends, many fine pictures resulting from the wealth of material that this location affords.

OUR BOOK SHELVES

"Mirrors, Prisms and Lenses"

This text-book of geometrical optics can be accepted by the readers as both authoritative and exhaustive to the limits of its pages, some five hundred and seventy-five. Its author, Professor James P. C. Southall, of Columbia University, is a teacher and author of marked ability who has the power of imparting knowledge in a direct and logical manner, insuring in this book a degree of lucidity that is as valuable as it is gratifying to the one who turns to its pages for an understanding of the subject of which it treats. Aside from the more general consideration that should also interest, the chapters on anastigmat lenses, geometrical theory of symetrical optical systems, and compound systems, renders this work particularly valuable to the photographer who desires to know more concerning the optics involved in the use of his various types of lenses. The book is published by The Macmillan Company, 66 Fifth Avenue, New York; price three dollars and twenty-five cents.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Ellis Pollock has located in Ukiah.

Arthur Muhl is still sporting that pretty purple car.

Ed Seeley of Arcata has opened a branch in Eureka.

"Doc" Merriman of Hartsook's Santa Rosa studio, is saving silver.

All the photographers in the Northwest have been very busy the past winter.

Petaluma's leading photographer, A. Salb, was in town recently. He came down all alone.

L. J. "Doc" Bergman looks well at the Multnomah Photo Supply Company's store in Portland.

Ed O'Neil of Pike & Markham, recently received a good offer on his Corona. The writer was the victim.

Harry Streickmaker now has charge of the photo department of Woodard Clark Drug Company, Portland.

Miss Owens of Ing & Allee Drug Company, Sacramento, knows how to pick out Scotch plaid waists that are becoming to her.

Bob Smith is on the Coast doing special demonstration of Eastman Portrait Films. Look out for him. He'll drop in on you some day soon.

Freeman Art Company of Eureka have opened a very large and beautiful show room at Sutter and Stockton Streets, San Francisco. When in the city you should call and see the display.

"Daddy" Lively Wants to Help

W. S. (Daddy) Lively, president of the Southern School of Photography, asks us to announce, as we gladly do, that a free Post Graduate Review will be given to every past student of the school who entered the Government service. This course will be available some time during the next school term, date to be set later, and the boys are invited to bring their wives, as they will also be included in the offer of this free review course. He wants as many as possible to come, to the end that there may be, not only a grand and happy reunion but a thorough "brushing up" preparatory for a new start in photography. Those interested should at once get in touch with the school to the end that Mr. Lively will know about how many can be expected.

New Mountain View Studio

M. E. White is opening a modern ground-floor studio at Mountain View, a brisk and thriving town in the heart of the celebrated Santa Clara Valley. The studio, which is located at 167 Castro Street, is well equipped and with Mr. White's ability as a photographer, the combination assures the success so general with all enterprizes in this favored locality.

Airship Mail Practical

London, March 24.—Major-General Sir Percy Granville Girouard, a distinguished engineer, has conceived a plan by which letters can be reduced for the purpose of transit to one-fiftieth of their present weight, so making airship mail between Great Britain and the United States a practical proposition. "In other words," says the Daily Mail, "it may be possible, in the near future, for business letters from Great Britain to be delivered in the United States in four or five days at a cost of not more than double the current rates. The system has been submitted to the postmaster-general, and as Sir Percy is on a business trip to the United States he may place his proposals before the American Government.

"By his system, each letter on standard note paper, say, eight by ten inches, will be photographed and filmed in a space three-quarters of an inch by one inch. The film will be carried by airship across the Atlantic in three days at most, and then reproduced on the same size note paper, placed in an envelope and addressed, sorted and delivered. It is estimated that the present average busi-

ness mail from Great Britain to America is 250 to 300 tons per steamship; reduction in weight to one-fiftieth would make the weight of film five or six tons. The procedure has been thoroughly tested with existing apparatus to Girouard's complete satisfaction.

"A Canadian by birth, Sir Percy Girouard was on Kitchener's staff in the Soudan campaign and in the Boer war, where he was railway chief. He retired from the army as a lieutenant-colonel of Royal Engineers in order to resume an active directorship of Armstrong and Whitworth's ordnance and armament firm at Elswick. As Minister of War, Lord Kitchener found need of Sir Percy's services, and, resigning his lucrative position, he rejoined the army with the commission of a major-general. Having some friction with Lloyd George, Sir Percy resigned his post in the munitions department."—*Mail and Express, Toronto.*

The Kalogen Developer

This developer is one that has been used by some of our best workers who are loud in their praise of its good quality. They claim that it gives them any desired quality in their negatives by the simple process of varying the dilution in connection with the use of or withholding of bromide, to which last the developer responds promptly and uniformly. Those who are not quite satisfied with the developer they are using will do well to investigate the merits of Kalogen. A three-ounce bottle, costing seventy-five cents postpaid, will make seventy-five ounces of normal developer. Address Frederick W. Keasbey, Box 303, Morristown, New Jersey.

Illinois College of Photography

After an absence of a year and a half, Le Grand A. Flack, Secretary of the Colleges, has returned to his post. During his service in the army, he was with the medical department.

During vacation week, Professor Cook and family motored to Springfield, visiting several successful former students. Rollo Redman, class of 1900, has been very successful at Springfield; John Lindquist, of 1907, especially successful at Decatur, and Walter Holzmueller, of 1912, at Sullivan. The receipts of these three photographers, we were gratified to learn run into the thousands annually.

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, for April 1, 1919, of CAMERA CRAFT, published monthly at San Francisco, State of California, County of San Francisco.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Fayette J. Clute, who, having been duly sworn according to law, deposes and says that he is the Editor of the CAMERA CRAFT and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

Publisher, Camera Craft Publishing Company, San Francisco, California; Editor, Fayette J. Clute, San Francisco, California; Managing Editor, Fayette J. Clute, San Francisco, California; Business Manager, Fayette J. Clute, San Francisco, California. That the owners are Camera Craft Publishing Company, San Francisco, California; Harriette E. Clute, Trustee, Hanford, California; Romaine F. Clute and Clifford H. Clute, Beneficiaries, Mountain View, California.

That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are none.

That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest, direct or indirect, in the said stock, bonds, or other securities than as so stated by him.

(Signed) FAYETTE J. CLUTE, Editor.

Sworn to and subscribed before me this twenty-eighth day of March, 1919.

SID J. PALMER, Notary Public,
in and for the City and County of San Francisco, State of California. My commission expires December thirty-first, 1922.

XXVI No. 6 JUNE, 1919 Price, 10 Cents

CAMERA CRAFT

SAN FRANCISCO
CALIFORNIA

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MONOMET has been tried out thoroughly in comparison with other modern developers and its results are unquestionably superior.

MONOMET sepias are identical with those produced from prints developed with Metol.

PRICE

One-pound container	$22.50
Half-pound container	11.50
Quarter-pound container	6.00
One-ounce container	1.50

ANSCO COMPANY Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

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Expirations—Subscriptions to Camera Craft are discontinued on date of expiration. The date on the address label on the wrapper shows the time to which each subscriber has paid. Thus: Nov. 09 means that the subscription expires with the number dated November, 1909. ¶Renewing—In renewing a subscription, do not fail to say that it is a renewal, giving name and address just as now on the address label. ¶New Address—In notifying us of a change of address, give both the old and new address. Should you miss a copy through change of address, advise us of the fact, and another will be gladly sent. ¶Dealers—All photographic supply dealers and news dealers are authorized to receipt for subscriptions in our name.

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3¼x4¼ Ross Homocentric, 5-in. focus, f-6.3, in sunken mount, new	now	23.00
3¼x4¼ Goerz Syntor, 5-in. focus, f-6.8, in Automatic shutter; perfect condition; list $43.00	now	24.75
3¼x4¼ Ross Homocentric, 5-in. focus, f-6.3, in Koilos shutter; new	now	32.50
3¼x4¼ Ross Homocentric, 5-in. focus, f-6.3, in Multispeed Jr. shutter; new	now	37.50
3¼x4¼ Ross Homocentric, 5½-in. focus, f-6.3, in Koilos shutter; new	now	36.50
3¼x4¼ Ross Homocentric, 5-in. focus, f-6.3, in Compound shutter; new	now	36.00
3¼x4¼ Ross Goerz, 5-in. focus, f-6.8, in Optimo shutter; new	now	38.75
3¼x4¼ Ross Goerz, 5-in. focus, f-6.8, in Ilex Acme shutter; like new	now	38.75
3¼x4¼ Ross New Combinable, 5½-in. focus, f-5.5; front lens 9½-in. focus, in bbl., new,	now	48.50
3¼x4¼ Zeiss Kodak Anastigmat, No. 2, 5-in. focus, f-6.3, in barrel, new, list $23.50	now	17.50
3¼x4¼ Carl Zeiss, Jena, Protar VIIA, f-7, 4½-in. focus; front lens 8¾ in., back lens 7⅞ in., fitted in Volute shutter; like new; list $73.50	now	53.00
3¼x4¼ Goerz Dagor, Series III, No. 0, 5-in. focus, f-6.8, in barrel; perfect condition; list $37.50	now	24.00
3¼x4¼ Goerz Dagor, Series III, No. 0, 5-in. focus, f-6.8, in Wollensak Auto shutter; perfect condition; list $45.00	now	29.00
3¼x5½ Goerz Dagor, Series III, No. 1A, 6½-in. focus, in Compound shutter; list $60.00,	now	47.50
4x5 Ross Homocentric, 6-in. focus, f-6.3, in Multispeed Jr. shutter; new	now	42.50
4x5 Ross Homocentric, 6-in. focus, f-6.8, in barrel; new	now	24.50
4x5 Ross New Combinable, 6-in. focus, f-5.5, in sunken mount; new	now	55.00
4x5 Zeiss Wide Angle Anastigmat, 4½-in. focus, f-16, in barrel	now	18.00
5x7 Ross Homocentric, 7-in. focus, f-6.8, in Accurate shutter	now	43.50
5x7 Ross Homocentric, 8½-in. focus, f-8, in barrel	now	34.00
5x7 Ross Goerz, 8¼-in. focus, f-6.8, in barrel	now	40.75
5x7 Ross Wide Angle Anastigmat, 4¼-in. focus, in barrel	now	21.00
5x7 Standard Portrait lens, fitted in Unicum shutter, 6-in. focus, f-5, list $23.75	now	16.50
5x7 Turner Reich Anastigmat, Series III, No. 2, 7½-in. focus, convertible, in Autex shutter; like new; list $55.00	now	43.50
5x7 Seroco Anastigmat, 7-in. focus, f-6.8, in Koilos shutter; list $50.00	now	23.75
5x7 Cooke Telar, No. 3, 16-in. focus, f-7, in barrel; like new; list $60.00	now	45.00
5x7 Bausch & Lomb Zeiss Tessar, Series IC, 7-in. focus, f-4.5, in barrel; like new; list $58.00	now	48.00

Continued on Next Page

AT THE BAND STAND, GOLDEN GATE PARK
By THE LATE W. H. RABE

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXVI JUNE, 1919 No. 6

Hunting For Pictures

By Benjamin Wallace Douglass

Illustrations, Except One, by the Author

The discussion started in Chicago. A lot of things start in Chicago, but this particular discussion deals with photographic matters in which the amateur should be interested.

I was in one of the nice little camera emporiums there (they are no less than that), and had just bought six rolls of film. My friend spoke up and said "What in the world are you going to do with all that film at this time of year; there's nothing to take".

He could be excused for thinking there was "nothing to take", because he lives in Chicago and I don't. But he continued:

"Now, if it was summer time and we could get down on Sugar Creek in Indiana, I could take you to places where six rolls of film would be justified. Big rock ledges, and woods, and streams,—oh, just every sort of picture you can imagine;—but in Chicago, at this time of year, especially!" His gesture indicated that Chicago at this time of year was impossible from a photographic standpoint, and that he thought I was losing my mind by attempting to make pictures in smoky February.

Now Jim didn't know that the dealer had just sold me a Graflex, and that my primary intention in buying "all that film" was to test the camera to see how badly I had been stung. I let him think that I was planning to take these pictures as a matter of course, and I decided to "string him along" a little.

"Jim", I said, "I'll tell you what I will do. I will go out and make a bunch

A DOORWAY TO THE FIELD MUSEUM

of exposures this afternoon and tomorrow, and as soon as they can be finished I will enter them against the best you can show from dear old Sugar Creek. Pick out your best prints and bring them down and put them alongside of the prints I get. Then we will see if I am right about there being any pictures floating around this old town in late winter."

He took me up on this proposition and agreed to hunt up his best, but I could see that he felt sorry for me.

So with this friendly contest on, I started out with my newly acquired Graflex; the first I had ever owned, although I have been making pictures for nearly thirty years.

We were spending a few weeks with friends down on Blackstone Avenue, not far from Jackson Park, so that my first move was to load up the camera,

THE CAMERA POINTED RIGHT TOWARDS THE SUN

ONE THAT MIGHT EASILY BE OVERLOOKED

and start for the park. I did not get far. When I am out for pictures I seem to see things in a different way from that in which I see them ordinarily. When I have no camera I can pass by a possible picture without batting an eye-lash, but with a box under my arm these same situations seem to rise up and smite me and compel attention.

This was true on this occasion, because, as I came out of the door of the apartment house, I was struck with the architectural beauties of a church doorway immediately across the street. From an artistic standpoint the entire church is rather absurd, and I would never think of trying to make a picture of the building as a whole, but the doorway (which I had not noticed particularly before), is good, and I made my first exposure on it. In spite of the storm doors the result

BETTER THAN THE LION OF LUCERNE

is pleasing, and I was sure that I had registered a score against Jim without going ten feet from my headquarters.

Down in the park pictures were so abundant that I could pick and choose. Jackson Park is a marvel to me, and always will be. It was here that Chicago staged her great World's Fair back in 1893, and it was then that I first saw the place. I will always remember that vast aggregation of white buildings and the endless miles of pavements. I was a boy then, and with a boy's impressionableness, I carried away in my mind pictures that will never fade. Even as I look upon Jackson Park today there comes to me a vision of the beauty of the place as I first saw it and my imagination peoples again the open spaces with the crowds that swarmed there when the exposition was at high tide.

Today most of the buildings are gone and the park shows but little to

WHERE SOME LARGE WILLOWS GREW

visibly remind us of what it once was. The pavements and buildings have been replaced by sod and trees. The lagoons are still lagoons, but strangely changed. I went out on the "wooded island" where once throngs gathered about the quaint Java buildings. This time I was the only person on the island, but a multitude of gray squirrels explored my pockets in search of peanuts.

One of the few buildings left in Jackson Park is the old German Government Building out on the lake front. Why it is left I do not know. Probably because Chicago is still the sixth German city. I can imagine no other reason; for it is the most grotesque architectural hodgepodge that ever pained my eyes. With characteristic German thoroughness its builders embodied in its design every type of architecture from Turkish to Old English. It is ugly in every line and I wasted no films upon its ugliness.

Near the German building stand a lot of large trees, mostly willows. Some of these are so placed that they furnish admirable subjects for the camera when the light is right. I risked a number of films here and got a series of

negatives that are pleasing in both tone and composition. Jim would not have taken these: because the camera was "pointed right toward the sun".

From the big willows it was only a step over to the Field Museum Building, another relic of the fair. Architects have said that this is the most beautiful building that has been erected since the Parthenon. Not having seen all of the buildings involved I do not feel that I am in any position to pass upon the subject myself, but I will say that this building has always given me a great deal of pleasure. Even now, falling to pieces as it is, it is still beautiful, far more so than the new building of the Field Museum will ever be. There is a dignity and strength to this old creation of brick and plaster that grips one strongly. The building as a whole would be difficult to photograph. It is too big. I never saw any photograph or drawing that did justice to the original. I merely

THE LAGOONS ARE STRANGELY CHANGED

attempted to make record pictures of a few of the interesting doorways and wings, just to show Jim that there were picture possibilities here that he had overlooked.

The next morning I carried the war right into the enemy's country by taking my camera with me into town. I started on Michigan Boulevard at Randolph Street and made my first exposures. I think I made six before I left the location, and all of them made pleasing pictures. Not all of them can be reproduced for lack of space. Then I drifted south along the east side of the Boulevard, taking an occasional picture every hundred feet or so until I got to the Art Institute.

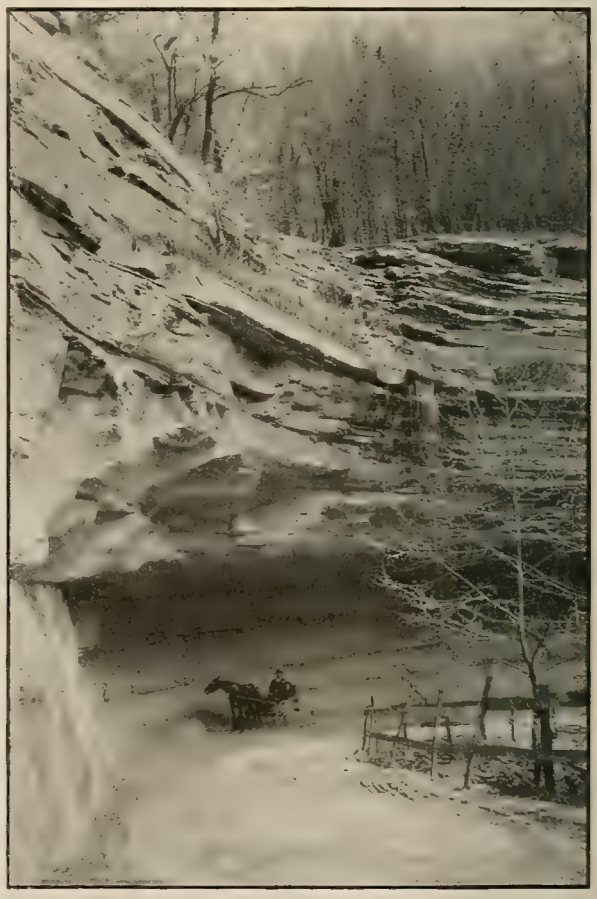
I expect that in normal times, hundreds of Chicago people take pictures of the Lion of Lucerne, and overlook the fact that they have a far better lion right at home and in a far more convenient place to be photographed. Or if they are not sufficiently thrilled by the sculptured beast, they can go out to the Field Museum and photograph a stuffed one, or to Lincoln Park and risk

their camera and their hide on the real thing. The point is that Chicago people, quite needlessly, hike away off to the other side of the world to photograph lions.

The idea is figurative, of course, but it suggests something John Chislet once said about a print that he showed a group of friends while he was living in Indianapolis. The subject, a section of his own back yard, made a very pleasing picture. He told us that he had traveled all over the country seeking pictures and had been living with this one right at his door for years, without realizing it until a short time before.

To get back to my story. I finally selected some eight or ten prints from negatives made entirely within the limits of Chicago and asked Jim to judge them alongside one or more of the best of his pictures of scenery. He trotted out his prized picture, "The Whisper Cave", which I promptly appropriated and submit herewith, along with my own prints.

Now "The Whisper Cave", in real life, is quite interesting. But it is not a suitable subject for anything more than a record picture. As a photograph it is not beautiful. One would hardly submit it as a possible salon picture.



THE WHISPER CAVE

For that matter my Chicago pictures are hardly up to salon standard either, but most of them are pleasing. They are interesting because they express a certain amount of beauty, and when we are taking pictures we are trying, or should be trying to make a permanent record of that which is beautiful. I have endeavored to show, by this series of prints, that beauty is where we find it, often right at our feet, so close to us and so obvious that we have become blinded to it and take it as a matter of course. In our blindness we have felt that, in order to get pictures worth while, we had to make a long journey and hunt up the most unusual situations. Verily, the "See America First" slogan might well be applied primarily to our home surroundings.

Chicago, or any other great city, has an abundance of architectural subjects

THE FIRST EXPOSURE

RIGHT DOWN TOWN

on which the amateur could well spend a little time. Ordinarily I seldom take pictures of this type, because I have a great amount of other work that must be done, work that takes me more into the country than into the city. It is a lack of opportunity more than anything else, because I enjoy these architectural subjects just as much as any other branch of camera work.

Our lives in every direction, every occupation, are filled with the presence and influence of Art; and as every day of our lives, we are called upon to exercise a choice or to express an opinion bearing on the subject, does it not become a moral obligation to exercise a wide choice, to express a just opinion, and since there is a good and bad, a true and false in Art, to learn to distinguish them?—Lucy Crane.

Art is not a thing of spontaneous origin, but of slow and gradual, though constant, growth, ever changing, with a tendency to advance from the simple to the complex; and, while we may study and compare its fluctuations in the past, and view the changes which it undergoes in the present, and speculate as to its beginnings, yet in nowise can we foretell what will be the end.—Henry Balfour.

An Enlarging and Reducing Camera

By Charles A. Harris

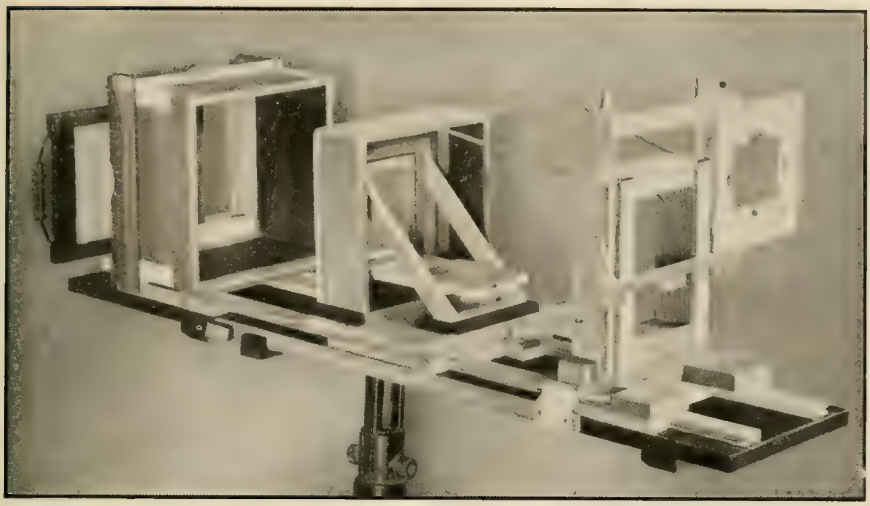
With Illustrations by the Author

Why is a camera of this particular type and what is the modus operandi as to construction and use? Quite naturally, in the terms of a questionnaire, we begin by answering our own question.

Perhaps, when laying plans for such work, the consideration of first importance is the bellows question. This is disposed of in such a manner as to secure a given extension by means of the three sections that constitute the apparatus; this last with the object of reducing to a minimum the length of our improvised bellows, a simple cloth tube, making all as simple to handle as possible. The box-like back portion of the apparatus is about eight inches deep, the cloth bellows a little longer, while the remainder of the extension, the longest section, is occupied by the small camera, attached as shown, the various adjustments and conveniences of this last being useful. The intervening space between the lens, a five-inch focus one, and the plateholder at the other end, has been calculated to give a four-time enlargement from a 3¼x4¼ negative. If we look up a table or figure it out by rule, we will find that the distance from negative to lens should be, for these conditions, six and one-fourth inches, and the distance from lens to sensitive paper or plate, four times that or twenty-five inches. This as an example; other requirements or lenses of different focal lengths of course demanding different measurements.

A small lens, one of short focal length is, by the way, a great advantage as a space-saver; and, working from negatives up to the size that the lens will cover, is just as satisfactory as a larger or longer focus one. Just as the five-inch lens will yield a 3¼x4¼ negative showing in miniature the entire side of a house, it will, contrawise manipulated, make an enlargement from that negative as large as the side of the house, if such is required. And, of course, if one can make a negative of the side of a house on a 3¼x4¼ plate with the five-inch lens, he can set up an 11x14 or any other size of negative and photograph it in the form of a positive or lantern slide with the same lens and the 3¼x4¼ plate. In other words, with the lens in question it is possible to make reductions to 3¼x4¼ or less from any size of negative, and it is feasible to make any size of enlargement from any negative up to 3¼x4¼ size. This statement is made to remove the too common misconception that the size of the lens has something to do with the size of the enlargement or the negative to be reduced as a positive. Since the small lens is par excellence for use with this form of apparatus, this method of working should appeal quite strongly to the owners of small cameras.

It might be well to explain that one can, if he so desires, use this apparatus



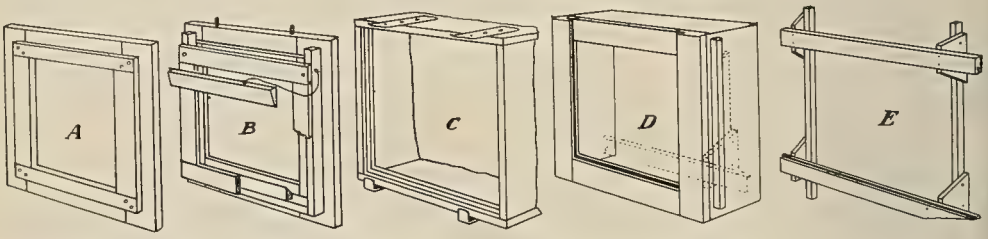
without employing the small camera, by the simple expedient of fitting a lens board to the middle section, which last would then become a sliding front. Doing this, any lens might be used if its focal requirements had been arranged for in designing the apparatus, and I would add that the simple improvised bellows shown is practical and convenient for any reasonable extension, should such be necessary.

The bellows, the improvised but very satisfactory form we have mentioned, is made of a double thickness of closely woven black cloth, and differs somewhat from the familiar form, as shown quite plainly in the accompanying illustration. One end fits over and is attached to the box-like back of the apparatus, forming a neat covering, while the other end extends over and is attached to the inner side of the central or camera-carrying section. In use, the length of this bellows is regulated by pulling the cloth in the desired direction over the edge of the camera section, any surplus being tucked into the marginal space at the front. In this way the cloth is easily kept taut at approximately the distance wanted, any further adjustment being made by means of the bellows on the small camera.

The advantage of utilizing the small camera, as explained, becomes apparent, particularly in connection with the small lens. So operated, the latter should have a range varying from twice its focal length and producing a same-size image, up to the full capacity of the extension. Used for enlarging, this covers all reasonable requirements. For making reductions, work less than negative size, the camera-carrying section is released from its platform and telescoped into the box-like back section to the required position, the ends of the forward braces resting, as before, upon the platform, but of course at a point further back. The upper surface of the platform and the inner surface of the lower side of the box-like back are made to have the same level, so that when the platform is shoved back against the latter, a continuous flat surface is presented. As is often the case, the entire operation is much more simple than the telling. While the two classes of work, enlargements and reductions, are usually quite distinct as to procedure, this apparatus makes it easy to prepare for doing either, as desired.

To return again to the bellows: I first fitted a brown paper pattern, to be sure of shape and size; and then from this, cut two similar pieces of cloth, these last being separately placed in position and their edges glued together. This was conveniently done with seams coming on the top, a narrow strip of board or heavy glass placed beneath the joining holding the edges in place. The cloth should be drawn smooth but not over-tight, and they should, in turn, be allowed to dry, in position, before handling. This done, we proceed by tacking the inner section to the back with joinure to one side and then the outer section with its joinure to the opposite side, dividing in this way the slight unevenness that might result were the joinures on the lower side and avoiding the unsightliness of having them at the top. This done, the free ends of the two sections are drawn smoothly over the central or camera-carrying frame and the edges tacked to the inner side.

The connection between these parts just described and the general principles on which the apparatus is based, has led us to explain what is really the last part of the work, so that we will now properly start with the run or base-board on which the several parts are adjusted. For this we require a piece of ten-inch board, redwood by choice, on account of its relative lightness, and planed



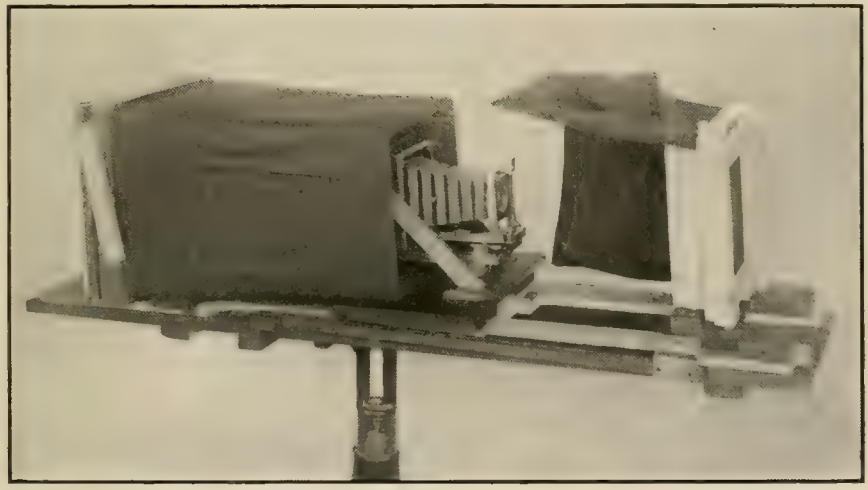
A: Reversible back with half of edge cut away. B: Same completed. C: Box-like back. D: Front section. E: Rider for front

on all four sides. This should be of the proper length to accommodate the extension required by the focal length of the lens to be used. This one of mine, under examination, is about four feet long, although it does not look so in the illustrations. As shown, there are two stout cleats screwed on to the under side to prevent any tendency to warp; the other projection from the under side being a part of the adjustable stand on which the apparatus was placed for photographing. The rails on which the several parts slide are strips cut from the groove side of some half-inch inside finishing material, these being nailed to the base-board with their groove side outward and about an inch and a half from the edge; care being taken that they are perfectly parallel. A strip from the tongued side of the same material is cut into convenient lengths and these are nailed to the bases of the three upright parts in such a way as to engage the rails and operate thereon as a part of the base.

The space between the rails being about four inches, we utilize it for a simple device whereby the sliding parts are securely locked at any desired position in their travel. These consist of pieces of half-inch wood about four inches long and a little wider than the space between the rails, sawed through, a little to one side of the center and diagonal with their grain, so as to form pairs having a slight wedge form. One of each pair, the left hand one as used,

is screwed to the under side of the movable parts, the other being left free to be used as a wedge in connection therewith. The screw used is inserted through a lateral slot instead of a hole, this in order that there may be a little side play and permit this block to ride free or bind against the rail, according as the block on the right is wedged in place or withdrawn. This slot must allow only lateral play or trouble will result. One of these should be arranged to operate from the front of the camera-carrying section and another to be used from the back of the negative holder, these positions being most easy of access, particularly when the apparatus is used as I generally employ it, somewhat tilted or inclined upward through the upper part of an open window in order to avail myself of direct illumination from the unobstructed sky. A third may optionally be used for the back, although, as explained in another place, this is hardly necessary.

The construction of the reversible back is next in order. First, join up a frame, using half-inch white pine or other close-grained or easily worked



wood, by cutting away one-half the thickness at each overlapping corner, uniting firmly with glue and small screws placed as shown. The opening in this frame is a quarter of an inch larger each way than the inside opening of the plate-holder to be used, while the outer dimensions should be large enough so that the edges can later be trimmed down neatly to correspond with the box portion to which it fits. On one side of this frame, mark out a square in which the rectangular opening is exactly centered, and which should allow a margin of at least a half-inch at either end of the long way of the frame opening. From this pencil line outward, cut away one-half the thickness of the frame, using a chisel and finishing with sand-paper. If one prefers, this can be done before the frame is fastened together. The raised square so formed, when fitted to the back, makes a light-tight joint. Turning this frame over, we center a plateholder over the opening and mark and cut out a shallow recess which accommodates the projecting ledge of the plateholder and acts as a light trap. With the plateholder in place, it is enclosed on three sides with strips about

an inch wide and a quarter of an inch thicker than the plateholder itself, the end having the recess being left open. These, nailed in place, four thin strips are added to form the outside and complete this casing, their inner edges projecting inward over the edges of the holder about three-quarters of an inch. This procedure froms a pocket into which the holder should slide freely and without bending. It is, of course, essential that the holder be held firmly in contact, just as in a regular camera with its spring actuated back. This is achieved, in our case, by gluing a quarter-inch strip, beveled as shown in the drawing, across the inner side of the pocket at the closed end. At the opposite or open end the plateholder is kept in similar contact by a removable wedge-shaped strip, also shown in the drawing. The ground-glass frame is used interchangeably with the holder.

For a focusing screen, we construct a frame the same size as the holder and carrying a rebate that brings the surface of the ground-glass into the same plane as the emulsion side of the plate in a holder. This is best achieved by cutting the rebate a little deeper than is actually necessary and then placing strips of card or paper behind the ground-glass to bring it into exact register as determined by measurement. The adjustment is accomplished as follows: Cut a thin wedge of stiff cardboard, several inches long; remove the slide from a holder, insert a negative, lay a straight edge across the holder and insert the cardboard wedge between it and the plate, marking the point on the wedge where it comes in contact with the straight edge. Do the same with the ground-glass frame, building up beneath the glass with strips of card until the cardboard wedge indicates this about right. For a final test, this wedge can be shortened and a trial made of the register of the ground-glass near each corner, to make sure that all is correct.

The box section of the camera back is quite comprehensive. It is about eight inches deep and the other dimensions correspond with the reversible back as already explained. Four small square strips are nailed around the inner side, a quarter-inch from the rear edges, coming in contact with the removable back when the latter is in place, this as an extra precaution against light leakage at that point. The corners are furnished with angle pieces of sheet metal which help to make the box rigid and also light-tight, as with constant use the corners are inclined to work open. While this back, like the other two upright parts was supplied with the tongued strips, in case of need, it is fixed permanently in position with screws that pass through into the base-board, there being no necessity of its being adjustable and the ground-glass is more conveniently used near its end of the board.

The fastenings for holding the removable back in place are also included in the sketch. They are of sheet metal, bent as shown; the lower ones being fixed or stationary, while the upper ones are allowed a little play or spring, so they may be raised to clear the pegs on two sides of the frame, pegs which holes in these two upper catches engage when the frame is in either upright or horizontal position.

The middle or camera-carrying section should present no difficulties, as the details are quite plainly shown in one of the illustrations. The two forward

braces support the small board upon which the camera is attached; the cross piece connecting their lower ends fitting into a socket where a turn-button fastens all in correct position. The above, forming a unit, rests upon a platform consisting of two boards that are of just the right thickness to center lens, in normal position, with the back. The latter was first completed and set in place, and then the other two sections made to conform, in the matter of all centering alike, by means of their built-up bases. The back of the small camera fits into a recess; and, if so desired, the same recess can be fitted with a lens board to take a longer focus lens when, of course, the small camera is temporarily removed. This, like the back section, is made light-tight, the outer corners and edges well rounded, that the bellows may not be subjected to undue wear. In the illustration it will be noticed that the metal corners of the back have been partially covered with strips of felt to still further protect the cloth bellows and the same plan may be followed in the case of this central section.

The remaining section, the negative holder, consists of a shallow box with an upright grooved slide at the front that just takes a 5x7 negative or kit holding any smaller size. Of course, this can be any regular plate size desired, but it is best to have the opening of such a size that one's smaller negatives can be used horizontally in the movable frame. However, as these grooves hold the negative or kit in a fixed position opposite the lens, and there is no means of shifting the position of the plate or bromide paper in the holder at the back, arrangement must be made to shift the negative in both directions in order that one can enlarge from any particular portion thereof, as desired. This is accomplished by making a rider such as is shown in one of the sketches and in the illustration of the framework. In the sketch of the negative holder proper, a cleat is shown nailed to the side just back of the grooved piece on each side of the front. The two uprights of the rider slide behind these two fixed cleats and the grooved cross-pieces of the rider move in contact with the upright grooved pieces forming the front of the section, these being united with the four corner pieces as shown. As this rider can be shifted up or down and as the negative or kit placed in its grooves can be shifted from side to side, any particular part of the negative being used can be brought central to the lens and thereby made to fill the plate or bromide paper in the holder at the back. This, I believe, is an improvement over using a rising or sliding front, because the lens remains central where it works most efficiently. In the illustration of the framework the cardboard kit, which, by the way, is squared and consequently used either way around, is shown as nearly withdrawn from the rider, this latter being raised to an abnormal height above the center of the negative holder proper. When this rider or sliding frame is used, a cardboard with the proper sized opening should be placed in the fixed grooves of the holder around the edges of the movable kit in order to shut out extraneous light that might cause fogging of the plate or paper. All these grooved strips are merely portions of the grooved edge of some three-eighths inch hardwood flooring that answers the purpose admirably. A further refinement or auxiliary, shown none too clearly in the illustrations, consist of two thin strips of wood, attached with pieces of sheet metal as shown, one on each side, to the base

of the negative holder with the opposite ends extending back where they can be grasped and used to vary the distance of the negative while the image on the ground-glass is being studied or examined. All parts of the apparatus are thus brought under control from the back. One can even do the necessary focusing by moving the negative holder in this way by means of these two strips, when the lens is at an inconvenient distance.

The wire frame used to support the hood that extends back from the negative holder is quickly bent to the desired form and attached thereto with two small screw-eyes on each side. The interior surfaces of the three upright parts are painted a dull black to minimize troublesome reflections and then the cloth bellows, as a final job, is tacked in position as previously advised.

The varied work that is possible with an apparatus such as I have described is perhaps best left for the worker to develop in his own way, but I venture to say that when once he is accustomed to making prints regularly by projection, the use of a printing frame will, in a large measure, be abandoned. Most prints are improved by trimming, but judicious trimming of a miscellaneous set of prints can only result in an assortment of sizes as well as shapes. Made by projection, as with this apparatus, undesirable parts are eliminated and prints of any given size are turned out with the "safety first" and dispatch. It is often quite desirable to make up a set of prints of uniform size from negatives either varying in size or in the amount of their subject-matter required, and this apparatus makes so doing quite the usual thing.

Determination of the best plateholder size will depend upon the average size and character of the work contemplated. Where desired, an extreme range may be secured by providing a larger camera and to this fitting two reversible backs, one of the latter carrying a holder for the occasional larger size and the other accommodating a smaller holder for the general run of work. Facilities for larger sizes would then be available without encumbering the work generally done. As to the other dimension, that of bellows extensions, most of my own work has been within the two-diameter limit, and therefore, if used in a like manner, the four-time capacity indicated should be found generally sufficient, even to cover the occasional case where only a small portion of a given negative is to be utilized for the print.

Individual requirements may possibly call for some alterations as to minor details in the construction of this enlarging and reducing camera, but I trust that the general plan, as outlined, will suggest something helpful, the various features explained being applied as required. Our first question may now be submitted in the words of a well known advertiser: "There's a reason".

The day returns and brings us the petty rounds of irritating concerns and duties. Help us to play the man; help us to perform them with laughter and kind faces; let cheerfulness abound with industry. Give us to go blithely on our business all this day, bring us to our resting beds weary and content and undishonored, and grant us in the end the gift of sleep. Amen.—ROBERT LOUIS STEVENSON.

What the Brownie Can Do

By John A. Hickey

With Illustrations by the Author

I am constantly meeting amateurs who feel impelled to explain, as a reason for their lack of good results, that they "Have only a cheap Brownie camera". If they only had something like a 3A Kodak they could do so much better. And the fellow with the 3A bemoans the fact that he hasn't a Graflex; just as the latter complains that what he really needs is a regular portrait lens. And it all looks to me like the old story of the poor workman quarreling with his tools. Up at the club there is a member who has the right idea, despite the fact that he somewhat overworks his presentation of the brilliant thought. Whenever anybody shows around something he has made with his high-priced outfit or his special equipment, our friend of the bright idea is sure to inquire quite seriously: "Couldn't you have made it just as well with a Brownie?" And sad to relate, there is but rarely any good reason forthcoming as to why the wonderful production could not have been so made. And then somebody remembers that the club member who is most conspicuous at the leading salons does all his work with a lens taken from a Brownie and fitted to a small Graflex camera, the salon pictures being made by enlarging from the small negatives. And I have my suspicions that the Graflex camera is used in preference to the Brownie box mainly because he likes to use plates instead of film.

The Brownie, of course, is not suitable for high-speed work, so we will have to look elsewhere for something difficult in order to prove that it has capabilities that entitle it to at least some reduction in the disparagement implied by the self-sympathy so many of its owners bore us with when they show their prints. Home portraiture is a branch of photography that should at least test its capabilities. And if that is agreed, I would like to submit the accompanying

illustrations. And these last are not imposed upon the reader as examples of the best that can be done, much less as remarkable in any measure, either in their technical or artistic quality. They are not selected from a large number of negatives of like subjects. They are simply reproductions of my last four negatives, the only ones made, in response to an expressed desire of one of the subjects, who, through a doctor forbidding, could not get out to a studio to get what she called "regular photographs" that were wanted to send to some friends at a distance. They, these pictures, are introduced mainly because they were made under these conditions, conditions that show not only the possibilities of the poor little Brownie, but show just such a situation in which these possibilities become really valuable.

The room is an ordinary one; in fact, smaller than the ordinary. The window shown is the only one, but it is a double window and quite fortunately, extends fairly high. Had there been other windows, I would simply have drawn down the blinds over them. Had the room been larger, it might have been necessary to have moved up something to the side of the sitter opposite the window in order to have gotten a little detail into the shadow side of the face. As it was, I did not feel that anything of the kind was required. The lack of halation in the window is partly due to the use of film and partly to the fact that development was not forced, and again in part to the fact that, despite the window being a west one, the afternoon fog on that day somewhat filtered the sunlight that would otherwise have streamed into the room.

As the reader can judge by examining the reproductions for depth of focus, the medium sized stop was used; and, in each case, an exposure of twenty seconds was given. This last accounts for a slight softness in one or two of the faces in

the groups, but enlargements from the same negatives are perfectly satisfactory. To tell the truth, the print from which the standing figure is reproduced, was purposely softened in making the small enlargement used. The exposures were made between three-thirty and four in the afternoon, as explained, with a slight fog reducing the intensity of the sunlight. This medium stop of the Brownie is approximately f-22, so that one can calculate what the exposure should have been. Doing so, I think it will be found that the exposure was on the full side.

The plates were developed in the old Seed metol-hydroquinone formula, as follows:

Metol	3 grains
Sulphite of soda, crystals	48 grains
Hydroquinone	12 grains
Carbonate of soda	72 grains
Water	10 ounces
Bromide of potassium	3 grains

Giving as I do, fairly full exposures, this formula suits me somewhat better than some others that I have tried. For under-exposed plates or film it would perhaps require some modification, perhaps not. It gives good negatives of contrasty subjects, as these prints quite plainly show, I think.

And that is really all there is to it. The pictures are not such as a popular

actress might require for newspaper publicity; and yet, we find portrait studios containing elaborately built-up contraptions that do not give any better "window effects". The grouping and posing could perhaps be improved upon but they are at least quite natural and unaffected. And the same can be said of the expressions secured in each case, a result that is not always easy to achieve where more elaborate apparatus and more extended preparation is made. The subjects, before a Brownie, are as lacking in self-consciousness as they are obsessed with it before a more pretentious piece of apparatus. "It is only a Brownie", the resultant pictures "are only snap-shots", so why any apprehensions over the outcome? That seems to be the general attitude, much to the advantage of the Brownie itself, to say nothing of the ones who will be pleased in having pictures that so truthfully portray the subject.

I suppose I should show a diagram of the room with the position of sitters, window, camera and the like, all plainly indicated. But so doing is unnecessary. The pictures themselves show the position of the first two and the location of the camera is made quite obvious by the amount of the window included. Had I not wanted to show the window in the picture I might have secured a little better lighting effect had I worked with the camera closer to the side wall, the wall in which the window is situated, but by showing the window there is an agreement between the lighting and the scene that is desirable, and the window gives a naturalness that would have been sacrificed to a more formal effect were it not a part of the picture. And the pictures pleased the people for whom they were made, and that is the main thing, when all is said and done. If all our pictures did that and at the same time did not offend our own sense of the requirements, we would be lucky indeed. But we really should, such of us as have fallen into the bad habit, discontinue our plaint that our work is not what we should like to have it because our camera is "only a Brownie".

The Light That Failed

By Henry Hall—(With Apologies to Kipling)

A Lad there was, a Camera Fiend
(Even as you and I!)
And he thought that he had the Painters all skinned,
While into our ears, forever he dinned
The beauties of ART, while he artlessly sinned,
(Even as you and I!)

Oh! the years we waste, and the Cash we waste,
And Pyro and plates to beat the band,
Showing the crowd how well we know,
(And now we know we never could know,)
And did not understand!

And he draped in a sheet the Lady fair,
(Even as you and I!)
And he stood her up straight, and he tumbled her hair,
And he twisted her feet, and he focused with care,
And when he got through, no lady was there,
(Even as you and I!)

Then, into his dark-room straight he went,
(Even as you and I!)
And he balled up that plate, on Art intent,
Till it wasn't at all what the Lady meant,
But a Laddie must follow his natural bent—
(Even as you and I!)

Oh! the toil he lost, and the spoil he lost
Of the excellent things he planned!
But alas! for the Lady, who didn't know why,
(And now we can see why she'll never know why,)
And never will understand!

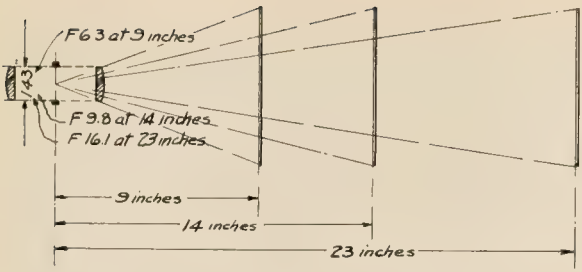
And the Laddie is stripped to his laddie hide,
(Even as you and I!)
If she ever sees this, she'll throw him aside,
And she'll say such things he'll wish he had died
Before Nude Art he ever had tried,—
(Even as you and I!)

But it isn't the shame, and it isn't the blame,
Of failing in what he had planned—
(For we're all of us tarred with the very same stick,)
But it's showing the thing that cuts to the quick,
And we never can understand!

Stop—Look and Listen

By Richard J. Grace

Dr. Downey brought in a package of woefully under-exposed plates, and asked me to diagnose the difficulty. Of course his name is not Downey, but the alias was suggested by the chicken hair immediately under his nose. I opened the package, and found each plate absolutely thin, with a slightly thinner blob in the center of each. They were so curiously uniform in their shapelessness that I selected the most definite and asked him what it was supposed to represent.



While I restrained myself, he explained that it was a photomicrograph "of the digestive process of a gastropod mollusk of the marine family Vermetidae". In plain words I suppose this is a fish worm. He had been sent some photographs for inspection by a fellow-imbecile, and before forwarding them to another of the species had tried to copy them. His lens is an f-6.3, nine inch focus, fourteen inches for the rear combination, and is the mate of one of mine. So I, having a strong suspicion of what was the matter, got out my camera and proceeded to demonstrate his difficulty. We set the camera by the window, as he had done, propped up a book, opened at a drawing of a septic tank, and I asked him to focus on it. The tank drawing was selected because it was the only one about the size of his original. When he had done focusing, the bellows was all the way out, and the focal length was twenty-three inches. I asked him if the rainy light was about the same as when he copied and it was. On asking him his exposure he said he had given one second at f-6.3. "Not with that lens; twenty-three inch focal length divided by six and three-tenths would require an aperture of about three and seven-tenths inches." The error he had fallen into was one that many others are victimized by, so I made him the diagram herewith. The f-6.3 lens at its normal focus of nine inches has an aperture at full opening of one and forty-three hundredths inches, which cannot be enlarged. When used with the rear combination the focal length is fourteen inches, and the lens works at f-9.8 with full opening, as the above diameter goes into fourteen inches nine and eight-tenth times. When copying close up as Dr. Downey had done, his f-6.3 was really f-16.1, as twenty-three inches divided by his stop diameter gives sixteen and one-tenth nearly. If one second at the actual f-6.3 had been the correct exposure, then at the twenty-three inch bellows extension, with its f-16.1 aperture, the exposure should have been seven seconds, which even the Doctor admits is logical. The Doctor had given his subject exactly one-seventh of the required exposure, and a host of poor students will not have to camouflage interest over, and answer questions on, the peristaltic action of a fishworm's "tummy". It is an ill wind that does not blow some good.

O man, joy taken from another cannot live. It dies when it leaves the victim, and hangs a dead weight upon your soul. It is only when we give, that we really live. It is only when a man forgets himself . . . that God possesses him. "The Foot of the Rainbow."

When has a man found the treasure? When he has found his soul. . . . When he is filled with joy and peace. . . . When he knows that love . . . for man and beast and things . . . is life.—"The Foot of the Rainbow."

Physical Intensification With Mercury

By Ralph Stuart Browne

Physical development is defined (Cassell's Cyclopedia of Photography) as follows: "The formation of the image by chemical deposition on the film of the plate, instead of by a chemical decomposition of the haloid salts in the film; * * * the latent image forming in some way a nucleus for this deposition, although not itself reduced. Another instance is afforded by the possibility of developing a gelatino-bromide plate after it has been fixed, by means of an alkaline developer containing silver nitrate."

To any one who has given the matter any thought, it will be evident that the foregoing definition is technically incorrect. Development, whether it be chemical or physical, has to do solely with the latent image. In developing the image there is always a point at which we are all agreed development must cease. Now it may so happen that for the particular purpose we have in view the image is unsatisfactory and requires further treatment. This after treatment must be one of two things: reduction or intensification.

But according to "Cassell" it is possible to bring development to a stop; fix and then resume development. In this the authorities are wrong. When development ceases any subsequent operation tending to strengthen the visible image is intensification. In other words, the term development is applicable only to the latent image and intensification to the visible image. From this it will appear that the term "redevelopment" is inappropriate and the process should be classed as intensification. When the visible image is strengthened by a method similar to the bringing out of the latent image by physical development the process is one of physical intensification.

In the fourth edition of "Lantern Slides," a booklet issued by Kodak Limited (Wrattan & Wainwright Division), two formulas are given for the physical development of lantern plates. One of these contains silver and the other mercury. The silver formula gives excellent results with lantern plates and from experience with other silver formulas, I have no doubt whatever that it would be a most excellent physical intensifier in addition. Those who have worked with silver formulas of this type will readily understand, however, that the disadvantages greatly outweigh the good points. The silver precipitates on both the bottom and sides of the tray, the solution darkens, the hands are stained, the efficiency of the solution is lowered very rapidly, and it is a most expensive formula to use.

Believing that possibly the mercury formula might offer some advantages over the silver, I conducted a series of experiments with it, using it as a physical intensifier, and was very agreeably surprised at the results. There was no preliminary bleaching of the image as in ordinary mercurial intensification, nor was there any clogging of the fine lines. The most minute detail was brought out

with extraordinary clearness and the opacity of the deposit was greater than that obtained by any other process. The following is the formula as given in the booklet mentioned:

A.	Sodium sulphite, dry	180 grams
	Mercuric bromide	9 grams
	Water	1000 cubic centimeters
B.	Sodium sulphite, dry	20 grams
	Metol	20 grams
	Water	1000 cubic centimeters

To five parts of A add one part of B.

The procedure is precisely the same as in physical development. The plate to be intensified is immersed in the solution and allowed to remain there until it gains sufficient density. It is then taken out and washed, after which it is dried and is at once ready for use. As in the case where the silver formula is used, there is a precipitate of the metal in the dish and on the surface of the plate. The deposit is very light however and is easily removable with a piece of cotton. A possible objection to the process is the slowness of the action. Usually it requires an hour or more to bring the lines up to a suitable density, but in one way this is an advantage as it permits the worker to follow the intensification very closely and to stop the action within very narrow limits.

A remarkable feature of this intensifier is that it completely fails with wet collodion plates. Those familiar with these last will recall that the wet collodion image is almost white by reflected light. I infer from this that this light-colored image is pure silver while that produced in dry plates developed with organic developers consists of a mixture of silver and an organic compound, and that it is this latter compound that forms the nucleus around which the mercury gathers when precipitated from a physical intensifier.

At the time the experiments were made I was fortunate in having on hand some old metol and was therefore able to make up the formula exactly as given. I afterwards tried to substitute both pyro and hydroquinone for the metol, but the results were very unsatisfactory. It has since occurred to me that possibly some of the "new" metols and metol substitutes might be used, and I suggest that amateur photographers interested in experimenting might continue work along this line. It would be a good way of finding out if these compounds are really what they profess to be.

It will be noted that the formula calls for mercuric bromide. This is a compound that is, at times, rather difficult to obtain. I made some experiments to determine whether or not it would be possible to substitute mercuric chloride and potassium bromide in the formula. When these two compounds are brought together in solution in the proportion of their combining weights the following reaction takes place: $HgCl_2 + 2KBr = HgBr_2 + 2KCl$. The product is mercuric bromide and potassium chloride. According to Prescott and Johnson, mercuric bromide is soluble in two hundred and fifty parts of cold water or in excess of either mercuric chloride or potassium bromide. Therefore if the two reagents are brought together in concentrated solutions in the proper proportion we should expect a precipitate of mercuric bromide. My experiments showed that such a

BEFORE INTENSIFICATION

AFTER INTENSIFICATION

precipitation does not occur; the presence of the potassium chloride probably being the disturbing factor.

In the experiments made to determine the possibility of substituting mercuric chloride and potassium bromide for the mercuric bromide I found out that it made absolutely no difference in the behavior of the intensifier when the substitution was made in the proper proportions.

The combining weight of mercuric chloride is 270.5 and of potassium bromide 237.5. In making the substitution in the formula it is therefore essential that this proportion be maintained. The following formula is the same as the one given above with the substitution as noted:

A.	Sodium sulphite, dry	180.	grams
	Mercuric chloride	6.7	grams
	Potassimum bromide	6.0	grams
	Water	1000.	cubic centimeters
B.	Sodium sulphite, dry	20.	grams
	Metol	20.	grams
	Water	1000.	cubic centimeters

To five parts of A add one part of B.

You cannot build up an altogether new system of architecture or of morality; all that you can do is to slightly modify the forms which your fathers have left you, by the occasional introduction of new ideas.—RALPH RADCLIFFE-WHITEHEAD.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

MAKING LANTERN SLIDES: Until a short time ago it was my practice to attach the slide plate to the white paper-covered easel of my enlarging and reducing outfit, with three or four glass-headed pins, and then make the exposure. An older hand suggested that I fasten a piece of dark or black paper to the center of the easel before pinning up the plates. The suggestion was carried out and with a decided improvement in the results.—E. D. C., Vermont.

TREATMENT OF BLISTERS: Recently I have been troubled with an occasional blister on some of my large bromide prints, prints too large to throw away. By using a needle and making a small hole from the back, the watery contents can be removed; and then, when the print is just surface dry I apply a little alcohol to the blister and it contracts enough to pull the raised film down flat where the slight remaining moisture beneath seems to cause it to adhere completely.—A. S. D., Florida.

BOTTLES AND CORKS: These wide-mouthed pound bottles that some of our chemicals come in are much better than the more expensive glass-stoppered kind, at least in this, the action of such chemicals as carbonate of soda and the like, do not cause them to stick. But those thin little corks are a nuisance to get out every time one wants to get at the contents. I tried very hard to get some thicker or longer ones, finding out, at last, that what I wanted was called a "bung", not a cork. But even after these were obtained, I returned to the use of the thin kind as the most convenient, after being properly equipped with a handle. This last is simply a length of stout cord, not too large, drawn through two holes with a heavy needle and tied in a loop a little above the top side, this loop serving as a convenient handle or "pull". The elasticity of the cork completely closes the holes made by the needle, or that part of them not occupied by the cord.—H. J. K., Louisiana.

QUICK PROOFS: My enlarging apparatus I have recently so arranged that by means of indicators on the base or run I can make "same size" prints without the necessity of focusing or even of locating the paper on the right position on the easel. This minimizes the time during which the negative is subjected to heat in front of the lamp used as an illuminant. When I want a quick proof, I take the negative from the fixing bath, rinse it a little, blot off the surface moisture, put in a special kit that gives it an edge for handling, and at once slide it into the enlarging apparatus and make the exposure. This plan is greatly superior to the usual method of contact printing from the wet negative after washing or by interposing celluloid to prevent hypo contamination; and, except for the slight fuzziness due to the swelled condition of the wet emulsion, the results are as good as could be secured hours later from the finished negative.—M. J. U., Iowa.

CAMERA CRAFT
A PHOTOGRAPHIC MONTHLY

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Why Doesn't the Photographer Advertise?

I cannot see why the photographer, no matter what his particular line of work may be, does not do some good, business-getting advertising; at least, why more of them do not do so. There are, of course, a few exceptional cases where a photographer gets out post cards or something of the kind, but in most instances he does little more than remind the prospective customer that he is still in business.

Suppose, for example, that the portrait photographer hunted up some willing victim in the form of a rather stout lady and, with her as a model, produced two pictures of the "before-and-after" type, pictures that would show what an intelligent use of different lighting and posing could do in the way of preventing the stout lady from appearing at a disadvantage in her portrait. We all know that, with this type of subjects, the standing figure is an improvement over the sitting one; we know further that the short-focus lens should be avoided, that the lines of the drapery should run down and not across the figure, and that lighting and posing gives us still further power of overcoming the difficulty. Of course, the use of the knife or etching tool upon the negative can be depended upon to enhance the results, but it is better to be able to say that no retouching whatever has been done. Then a companion set can be made with a rather slender lady as the subject, the skill of the photographer being exercised in exactly the opposite direction. The identity of the lady, in both cases, could easily be hidden and without any loss of interest therefrom, by the simple expedient of allowing her to wear an ordinary mask, preferably one cut from some other than black cloth. With small photographic copies of these two sets of prints, or half tone reproductions if expense is an item, one could get out a very convincing piece of printed matter calling attention to the fact that the particular photographer in question knows his business to such an extent that the ladies who vary somewhat from the prescribed standard of a given weight for a given height need no longer be deterred from having their portraits taken through the mistaken idea that the camera is bound to make them look fat and ugly or thin and scrawny, on the slightest provocation. It could be explained that, in the hands of a skilful photographer, exactly the opposite is the case. Not only would something of the kind bring in customers who would otherwise refrain from visiting a studio, but the obvious inference would be that the photographer who could do such things with the more difficult subjects could do even better in ordinary cases.

The commercial photographer would not have to go far to find a wealth of material for comparative pictures showing what could be done by a photographer who fully understood his business. He might even go so far as to use, for one of the pictures, a reproduction of some print actually employed for advertising purposes, showing one made of a like subject as it should be photo-

graphed, although it is not generally advisable to draw comparisons that are too invidious. And even the view man, the one soliciting out-door work, might do something of the same kind. He could take an ordinary house and photograph it from directly in front with a fairly short exposure, so as to produce the usual effect, and then make another negative from a carefully selected view point, using an orthrochromatic plate and giving a generous exposure. There should be little trouble in producing two prints that showed conclusively that in such a simple matter as photographing an ordinary residence, skill and capability were important factors.

And these particular plans are only suggestive; they are not put forth as the best possible, as fully worked out, or as exhausting the subject. What we want to advise is that some really good, business getting advertising matter be gotten out; the kind of advertising that men in other lines of business are willing to spend such a large per cent of their profits upon. The photographer can get out his advertising matter at less expense; he has the advantage of his own product, the photograph, being the best possible advertisement, and his prospective customers are all near at hand and easily reached with but little loss in distribution. He really is neglecting his opportunities.

Our "Department B"

In a recent issue we inserted a small advertisement announcing that we would be pleased to give attention to any queries that our readers might desire to put concerning photographic goods that had been advertised at some previous time, goods that were not at present advertised, goods that the inquirer believed were obtainable, but not easily located, and the like; the inquiries to be addressed "Department B", this office. It is, of course, not to be imagined that this Department B is anything in the nature of a large office room occupied by a staff of correspondents, surrounded by filing cabinets containing all available data concerning every conceivable kind of photographic material; but it is, at least, a special letter basket that is given our best attention. Having the letters addressed Department B assures their getting into this particular basket and also assures their being given consideration that is separate and distinct from our usual more hurried business correspondence. Most gratifying has been the response, even greater than we dared hope. And in addition, there has been another pleasing surprise in connection therewith, namely, the ease with which we have been able to locate the desired information and the quite obvious value of the service we could so easily supply to those more isolated or less in touch with more or less obsolete or indirect photographic matters. One of the first letters received asked concerning the Grun Liquid lens, and we were able, by merely using the telephone, to give our correspondent the report of a user who purchased one of them some twelve or more years ago, giving him the user's name and address in case he wished further information. In the same mail was an inquiry concerning reversed rubber type for titling negatives and the address of a New York firm supplying such material was promptly supplied. The service is one that we are pleased to give our readers and we trust they will avail themselves thereof to even a greater extent.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Mordant Methods

Inventors at the present moment seem to be very busy working out processes for the production of photographic prints by means of dye stuffs and mordants. The cause for the attention that is being given to this particular subject is not that it holds out any great promise for such printing as the amateur or professional photographer performs, although it is quite on the cards that something may come of it in that direction. But it is for its possibilities in providing kinematograph films in color, to show in an ordinary projector without special appliances, that experts are devoting themselves to what has hitherto been rather a by-way of photography.

The question naturally arises whether such methods might not be of some service for amateurs, not merely in the production of three-color prints or transparencies, but also for ordinary monochrome positives? The action of the mordant being more or less physical rather than chemical, the color, and to some extent the composition, of the dye is unimportant: at any rate, there is a very wide range of coloring materials which can be used, from those of a strong rich shade, such as is found in the deep browns and purples, to a delicate pure tint of yellow, pink or blue. As far as choice of color goes, such processes might come a very good second to the carbon process itself.

It may be as well to give a brief outline of what has been done up to the present, in case any of our readers would like to try their hand at some experimental prints by one of these methods. There are a great many processes and modifications which have been published, and in many cases patented, to which no reference has been made. To follow up these it would be necessary to make a careful search through the files of some such institution as the Patent Office Library; but the details which we give below outline fairly well the paths which have been followed up so far.

A mordant is a substance which will combine with and fix a dye stuff. If a fabric were printed with a mordant, which might itself be colorless, and then were immersed in a suitable dye and subsequently washed, the dye would be removed from all these parts where there was no mordant, while it would be retained in the parts where the mordant was present. Or, in some circumstances, the dye would only be taken up by the parts where the mordant was. In either case, the final result would be equivalent to printing directly with the dye stuff itself: except that for some reason or another this might not happen to be practicable, or the mordant might be essential in any case to hold the dye in the fabric.

Photographic processes which employ mordants are carried out by changing the photographic image, generally a silver image, into some compound which acts as a mordant The image is then immersed in the dye, which it takes up most strongly where the mordant is, and it then only remains to wash out the excess of dye. In some cases, the mordant, after having served its purpose, is removed, leaving nothing but the dye image: in others the mordant is invisible and harmless, and so is left to avoid unnecessary operations for its removal, or it is allowed to remain because its own color and density are required to form part of the finished image.

One of the first of these mordant processes was that of Dr. Traube, who in 1907 found that any of the haloid salts of silver would act as a mordant for a large number of dyes, silver iodide being the most powerful in its action. In his process a positive transparency after fixing and washing had its image changed into one of silver iodide, which could be done in several ways. It was then placed in the dye solution, in which it was left long enough for the action to be com-

plete, say ten minutes, although a longer time did no harm. The dyed film was then washed in water slightly acidified in acetic acid until the high-lights were perfectly free from stain; after which washing, a hypo bath removed the silver iodide, leaving the image in the dye. Certain additions to the hypo bath were made, according to the dyes used, to prevent the dye image suffering during the fixing.

This was introduced as a means of making transparencies in three colors for color photography, and it was found that practically any basic dye could be used successfully, so that all three transparencies could be made by the same method, only varying the dye. It was subsequently improved by hardening the film of gelatine with alum and by applying a strong solution of potassium iodide to the silver iodide image, which was thus made so transparent that fixing was not usually necessary.

A year after Dr. Traube published his method, a process which was a kind of mordant process reversed, was made public by Donisthorpe. Instead of using the dye which the mordant held, he used that which was not held. In the Donisthorpe process, therefore, we work with a negative and not a positive. The negative on glass was treated with a solution containing a salt of vanadium which, incidentally, toned the image to a strong blue. This toned image did not take up the dye to any great extent, though the rest of the film did, and the negative, after being placed for a few minutes in any one of a number of dye solutions, was apparently converted into a positive. After a rinse under the tap a sheet of paper coated with gelatine was squeegeed down upon it, and, after a few minutes in contact, was peeled off. The negative had parted with its dye, and the paper, therefore, bore a positive image in a color dependent upon the particular dye used.

Apparently in this case the vanadium-toned image did not pick up the dye, whereas the shadows of the negative, where there was less image, did. But although this was the explanation given at the time, it is doubtful how far it is correct. For it was subsequently found that a silver image which had been toned with vanadium served as a mordant; and a similar property is possessed by silver ferrocyanide, and by silver images toned with copper ferrocyanide.

F. E. Ives, in a recent publication by the Hess-Ives Laboratories, announces that he has discovered another mordanting process which he considers superior to those which have preceded it, the mordant being a compound of chromium and silver, but not silver chromate. A silver image is bleached by immersing it in a solution containing a quarter of an ounce each of potassium ferrocyanide and chromic acid to the quart of water. As soon as it is bleached it is transferred to running water, to prevent overhardening of the gelatine by the chromic acid. The washing must be sufficient to remove the whole of the free chromic acid, for which purpose a little sodium bicarbonate may be added to the washing water.

The image after bleaching and washing is ready for dyeing, a basic dye being suitable. Thus a typical dye bath is made by dissolving ten grains of saffranine in four ounces of alcohol, and adding this to a quart of water made slightly acid with acetic acid. Half an hour in such a solution may be necessary for complete dyeing, after which the high-lights are washed clear with water containing a little acetic acid. Other dyes which Mr. Ives has found very suitable are malachite green and auramine.

It is probable that the underlying paper would be stained too deeply to allow their use for making prints on paper; but this remains to be seen. If it does, there is still the possibility of the use of some such process for lantern slide work, and even for framed "prints", by making the transparency on glass, and then backing it up with paper. The difficulty of getting small quantities of dyes may stand in the way for the moment; but this is likely to disappear before long.—R. C. B. in *Amateur Photographer.*

Personal Practice In Lantern Slide Making

Dudley Johnston, before the Royal Photographic Society (London), enforced the account of his methods by the exhibition of a very large number of beautiful lantern views. He dealt in the first place with the production of slides of warm tone, and in the second with the process of blue and blue-gray tone slides, which are the characteristic feature of his own lecture sets. This latter process, he said, was not by any means easy, but there was no secret about it. It was all set out in Wratten and Wainwright's handbook, first edition, on "Lantern Slides". He believed that it had been discarded in later

editions on the ground of difficulty and uncertainty, but his own experience was that it was a more certain and elastic process than the method of physical development which had been substituted. It was undeniably a somewhat difficult process, and required a long experience to work it with reasonable certainty.

He proposed to discuss the subject from the point of view of the production of a set of lantern-slides for lecture purposes. His idea, in the first place, was to consider the set as a whole, and decide upon a general color scheme most suited to the subject. It was not necessary that the color scheme be rigidly adhered to throughout, for that would mean a fatal monotony. But a general color scheme, with judicious variations, formed a restful combination that was pleasing, whereas a constant succession of unrelated contrasts produced distraction. A strong or even a violent color contrast might be used with telling effect for the climax, but any departures from the general color selected should only be for a carefully considered contrast, and then only because the color chosen presented the picture at least as well as the normal color would. On the whole, a brown that was not too heavy nor yet too yellow was the most pleasant and generally useful color.

After showing by means of the lantern how occasionally abnormal effects, such as pyro stain or double toning, could be used to serve a pictorial purpose, Mr. Johnston went on to speak of the selection of the subject. For prints a certain amount of diffusion might be desirable, especially in the unessential details of the picture, but for lantern-slide work the negatives required to be in sharp focus throughout. Development was carried through with due regard to the illuminant that was to be used to make the slides. The negatives were dried face downwards, like the slides also, to avoid catching dust or hairs, and very carefully spotted or retouched with the aid of a magnifying glass, in order to avoid as far as possible the necessity of working on the lantern-slide itself.

For making the slides he used a reducing camera mounted on a baseboard about five feet long, with a revolving negative carrier at one end. The camera had a rising and falling front and a swing back, very useful appliances for adjusting the image and for correcting the perspective of vertical lines, etc., if necessary. The lens was a six-inch Cooke anastigmat, working at f-6.5. Usually he focussed at full aperture to get the maximum illumination of the image, and then stopped down to f-16 to make sure of sharpness. He used slow plates almost entirely, rapid plates only occasionally for black tones. It was best to stick to one make of plate. He found no advantage in "backed" plates. His illuminant was a three-tube mercury vapor lamp, the light being reflected from a white card placed behind the negative. With this light and average negatives the exposures were:

Black tones	7 to 10 seconds
Brown tones	30 to 100 seconds
Blue-gray tones.....	1½ to 2 minutes
Violet tones	10 to 15 minutes

The developer must be adjusted to the exposure. If warmer tones were desired, not only must the exposure be increased, but a corresponding alteration must be made in the constitution of the developer. Neglect of this led to muddy tones.

In development he formerly used adurol for warm tones; this, he believed, was an improved form of hydroquinone, and free from some of the latter's drawbacks. Whether adurol would be obtainable after the war was a problem, but if not, equally good results were forthcoming with a metol-hydroquinone developer, such as is given with every plate-maker's instructions. An important factor in obtaining satisfactory tones was the temperature. He worked, as a rule, at seventy and sometimes as high as seventy-five degrees, but great care was then required as the gelatine became very tender. His plan for keeping the developer at a constant temperature in cold weather was to keep a large basin of warm water on the bench and maintain it at seventy-five to eighty degrees by adding hot water as required, and in this he put all dishes and measures when not in actual use. The fixing solution and washing water should be of similar temperature to the developer.

His aim was so to adjust exposure, developer and temperature that he got the first faint but distinct image on the plate in about sixty seconds after pouring on the developer. In that case development would be complete in above five minutes. Density was judged by looking through the slide against the lamp. He used a yellow

safelight, Wratten's O.O, with an extra sheet of yellow paper, as his lamp was thirty-two candle power. It was curious to note that the developer improved with use. He did not throw it away at the end of his evening's work, but left it in the measure, and on going to work again in a day or two he threw half the old developer away and made up the bulk with fresh. Thus used, it gave better colors, was more regular in its action, and density was more easily judged.

As to the blue-gray and blue tones, all of these in his slides were obtained by development pure and simple, and not by any after-toning. The blue tones obtainable by gold toning were well known, but they had not the variety and subtlety of the developed tones ranging from black through blue and violet to red. After showing by examples how this process lent itself not only to moonlight and strong effects, but also to effects of quite notable delicacy, he proceeded to give an outline of the method. The formula of the developer, given in the handbook on "Lantern Slides", he suspected was worked out by Dr. Mees. According to the exposure and the proportions of the developer, this would give colors ranging from black through blue to purple and red. Even for the black tones the exposure required was about four times that which was normal for an ordinary developer.

A: Metol .....44 grains
Water .....20 ounces
Sodium sulphite, anhydrous .....½ ounce
Hydroquinone .....22 grains

B: Ammonium carbonate .... 1 ounce
Ammonium bromide ..... 1 ounce
Water .....10 ounces

C: Thiocarbamide .....33 grains
Ammonium bromide ....11 grains
Water .....10 ounces

The following table shows increase over normal exposure and proportioning of developer for different tones:

Tone	Exposure	Drams A	Drams B	Drams C
Blue-black	4 times	6	1½	½
Blue	8 times	5½	2	½
Violet	16 times	5	2½	½
Red	32 times	4½	3	½

In working this process, he aimed, as in the case of the brown tones, at an exposure which would ensure the first appearance of the image in sixty seconds, using the developer at seventy degrees. Development should then be complete in five minutes. The great difficulty was to gauge correct density, and the only reliable method was to watch the slide by reflected light in the developing dish and follow carefully the various phases. The first appearance of the image was yellowish, darkening to red, and then becoming bluish-black. As development progressed the whole slide darkened over in a manner that might suggest gross over-exposure or fogging, but this was to be disregarded. Presently the darkest portions began to take a lighter tinge, almost as if reversal was beginning. When they showed a well-pronounced buff color development had gone far enough.

As to color, this was mainly determined by the exposure, and the composition of the developer, but the negative also seemed to have some subtle influence. Cases arose in which a negative would yield a slide of a particular color, but no variations of exposure and development would induce it to give a really satisfactory slide of any other color. The color of the wet slide was usually quite different from what it would be when it was dry. Generally speaking, a slide which was a good blue when dry was pink when wet, but not invariably. This developer, again, was not at its best when fresh, and he was accustomed to put aside what remained over at the end of an evening's work, and when he next wanted to use it, poured half the developer away and added a little fresh, mixed in the same proportions as before.

Fixing took place in acid hypo, then the slide was well washed, then hardened for two minutes in five per cent formalin solution, washed again for five minutes, and finally put to dry on a rack, face downwards, so as to avoid dust, etc. When dry he tested the slide in the lantern and decided whether any reduction or intensification was advisable. In his experience there were few slides that could not be improved by one or other of these processes, sometimes by both.

For reduction the slide should first be soaked in water for ten minutes or more. Hypo-ferricyanide reducer was the more generally useful form. He kept an old egg-cup into which he poured one dram of saturated solution of plain hypo, added two

or three drops of ten per cent solution of potassium ferricyanide, and filled up with water. The finger tip was by far the most satisfactory means of applying the reducer, but a small sable brush was useful at times. It was wonderful how much could be done by these means with practice.

The intensification of slides was a very simple and certain process with the acid silver intensifier:

A:	Metol	88 grains
	Citric acid	176 grains
	Glacial acetic acid	1 ounce
	Water	20 ounces
B:	Silver nitrate	1 ounce
	Distilled water	10 ounces

For use take one ounce of A and one dram of B.

This formula was well known, and was mentioned in many books on lantern slides, but he had not anywhere seen a reference to one great and valuable property that it possessed, namely, that of intensifying the slide without altering the color. Whether the slide were brown, black, or blue, it remained the same color after being treated. It was necessary to apply the intensifier to the dry slide, and the action should not be continued for more than seventy or eighty seconds. If the requisite density had not been obtained in that time the slide should be washed for fifteen minutes and dried, and the intensification repeated. If the action was continued for more than one and a half minutes, or if the slide was first wetted, this intensifier tended to give a bluish tint. It was, as a matter of fact, a physical developer, and could be used to turn a very weak under-developed slide into a good blue one.

It now remained to put the finishing touches before masking and binding the finished slide. He again put the slide into the lantern and examined the projected image carefully for any defects. If there were scratches or abrasion marks, or if pieces of opaque matter or splinters of glass were embedded in the film, there was practically nothing that could be done, and if they were in the sky portion or any other place where they were noticeable it only remained to make a fresh slide. It was otherwise with clear spots, whether due to air bubbles in development or flaws in the negative, and in examining his own slides on the screen he was careful to locate any such marks.

His method of eliminating these was to place the slide on a retouching desk illuminated by a strong light reflected from a sheet of white paper, and to touch out the spots with a pencil having a very fine needle-like point. The pencils he used were 6 H or 9 H, and the points were trimmed long and kept sharp on a pad of fine sandpaper. A needle mounted in a paint-brush handle made an effective retouching tool, as a prick in the gelatine was sufficiently opaque. It also had the advantage of not constantly requiring to be sharpened. He went over the spot with a gentle pricking action as evenly as possible, guiding the operation with the aid of a powerful reading lens. Viewed by transmitted light the effort might appear to show little result, but when tested in the lantern, which, after all, was the conclusive test, it would probably be found much more effective than was thought.

Before binding the slide, he thoroughly dried both the paper mask and the slide before a gas fire, and took great care to exclude all hairs and particles of dust, when attaching the cover glass.

Mr. Johnston concluded by passing a number of slides through the lantern. Most of the slides were Italian views, and they illustrated the capacity of the thiocarbamide process to give, on the one hand, full rich black tones of really velvety quality, and, on the other, red or reddish purple slides, with every effect in between, including delicate grays and blues. At the close of his lecture he was asked what was the best surface to lay the plate on in order to dry, and said he used wire racks above the mantlepiece, and simply supported the plate face downwards against the wall so that there was plenty of air underneath, and yet any dust settling would go on the back of the plate and not on the face of it. In reply to the chairman, who asked whether he fixed face downwards or upwards in the dish, he replied that he fixed face upwards.

Carbon Printing By Artificial Light

Although many photographers, both professional and amateur, will be familiar with the fact that the printing of carbon tissue can be done conveniently with the stronger sources of artificial light, such as the electric arc and mercury vapor lamp, as well as by

daylight, it does not appear to be so well known that by choosing a suitable source of light, prints without the usual lateral inversion can be obtained from ordinary glass-plate negatives by the process of single transfer only.

To obtain the unreversed print the tissue must be placed in contact with the plain glass side of the negative, the latter being placed in the printing frame with the film towards the light. The negative must then be illuminated by a very small but sufficiently actinic source, and care must be taken that as little light as possible, other than the direct rays from the source, falls on the plate during the exposure.

The most convenient and satisfactory illuminant is undoubtedly the comparatively new Ediswan "Pointolite" (British) lamp. The actual source in this lamp is a small metal ball, the diameter of which is about two millimeters, supported in the center of a glass bulb some ten centimeters in diameter. The ball is rendered incandescent by a small electric arc, which is obtained by placing a second electrode immediately over the ball. The usual rating is one hundred candle-power, and the current required about one and one-half amperes. This intense and practically "point" source of light is highly actinic, and forms an ideal illuminant for many optical purposes. In using the lamp for the purpose under consideration, it is well to place the negative at one end of a box coated inside with a dead black, and to place the lamp outside the box at the other end. A small rectangular hole is to be provided in this end, so that when the lamp is placed as close as possible to the hole the beam of light which enters the box will just cover the film of the negative. The distance between the center of the bulb and the negative may be twenty centimeters, or even less. It is clear that a number of negatives may be printed at the same time, the bulb of the lamp being placed for this purpose in the middle of a circular or, say, octagonal box with suitable radial partitions; light reflected from the film of one negative must not be allowed to fall on the others. When six negatives are printed at once the cost of printing may be less than that of the final support used in the double transfer process, and there is, of course, also a considerable saving of time. With negatives of average density the time of exposure required is forty to fifty minutes. The time may be shortened, if fine definition is not required, by reducing the distance between the negative and the lamp. It may be added that the "Pointolite" takes so little current that it may be connected to any lamp-holder, special wiring not being required.

A second illuminant which will be found to give satisfactory results is the iron arc, but this can only be used where ordinary arc lights are installed or where the electrical fittings allow the use of a current of five or six amperes. The advantage of an arc with iron poles instead of the usual carbon poles is that the iron burns away very slowly, so that no "feed" is required. In fact, the lamp in this case may consist simply of two iron rods, one or one and one-half centimeters in thickness, supported in the same vertical line with a space of about four millimeters between their nearer ends. The poles must be, of course, insulated, and connected to the mains in the same manner as the ordinary arc lamp. The arc is most conveniently "struck" by drawing a third iron rod across the ends of the pole pieces. Once the poles become hot the lamp will run for long periods, sometimes for hours, without requiring attention. If the power is supplied by direct current the upper pole should be made the negative one. It is well to place a tray containing water below the lamp, as occasionally small pieces of molten iron may fall. As the light is very rich in ultra-violet rays it should not be used except when the eyes are protected by plain glass or ordinary spectacles. With this more powerful source a larger number of prints may be exposed at once, the frames being arranged in a circle, say fifty centimeters from the light. At this distance no special screens are necessary.

With the distances quoted above the diameter of the circles of confusion representing the points of the image is about .005 millimeter, but there is a slight loss of definition which appears to be due to reflection between the front and back surfaces of the negative. The want of sharpness, however, is remarkably slight, and in most cases amounts to no more than a softening of the otherwise hard lines of the picture, an effect which in many subjects is quite pleasing.—S. S. Richardson in *British Journal of Photography*.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Making Vista Views

Every once in a while we come across a view in the form of a charming vista seen beneath overhanging trees, views that we would like to secure if we could include the near, overhanging foliage, and the distance as well, all in good focus. We try to do it by stopping down, but the result is a lack of all atmosphere, just the element that is generally quite important in such views. One solution, and a very good one, is the use of a pinhole in place of a lens. Not only will everything be in like focus, but with the pin-hole, the worker is left free to select just the angle of view that he wishes. The pin-hole, having no pre-determined focal length, the camera can be placed nearer to or further back from the overhanging boughs so as to get just the desired amount included in the picture. And a pin-hole "lens" is not hard to make. A bit of tin-foil will serve the purpose; and, after the hole is carefully made, it can be glued to a circular piece of cardboard that will just fit in the shutter barrel with the lenses removed. A test or two will show about what increase of exposure is required; or, if one wishes to calculate the exposure, he can go about it in this way: Find out how many needles, of the size used to make the hole, will go in an inch, by laying a few of them side by side, say enough to make a quarter of an inch. Say it takes twelve of them to the quarter inch or fifty to the inch. Then, at five inches from the plate, the pinhole has a stop value of five times fifty or f-250. At six inches the value is six times fifty or f-300, and so on. Knowing the f- value it is quite easy to compute the increase in exposure by squaring both a known f- value and the calculated pin-hole value, and, then dividing the latter by the former. For example, if with f-16 we would give one-tenth second, with our one-fiftieth of an inch pin-hole six inches from the plate we would give thirty-five seconds because the square of f-300 is three hundred and fifty times greater than the square of sixteen, and three hundred and fifty times one-tenth is thirty-five. All very simple; in fact, much more simple than the telling of the procedure. But in case the telling is not as simple as it seems to me, I will put it in another way. The diameter of the pin- or needle-hole, divided into the camera extension (the focal length at which the pin-hole is used), gives the f- value of the pin-hole at that camera extension. The exposure required with that f- value of pin-hole is as the square of such f- value to the square of any other f-value for which the exposure is known. You can prove this by squaring f-8 and f-16, which you will find indicates that f-16 requires just four times the exposure of f-8, as you have known all the time.

Why Not a Tripod?

Recently I have been trying to find out why more users of the small camera do not carry a tripod and thus improve the quality and increase the scope of their work. Questioning not a few of such workers I found that they all admitted the value of the tripod, but it was thought to be either too heavy, too cumbersome, or it required too much fuss and attention attracting manipulation. These complaints have some foundation; and yet, are they of enough merit to justify the handicap which their observance imposes? The quesion is a somewhat open one, one best answered by the individual worker himself. But the other day an amateur came in with a home-made tripod that seems to remove some of the difficulties. He had bought or had some twelve feet of "half-round" ash or spruce, and this he had planed down on one side until it became "one-third-round", so that when cut into four-foot lengths the three pieces fitted together to form one full-round a little over an inch in diameter. The lower ends were provided with small spikes made by driving in wire nails and then filing off their heads and

shapening them. These were bent slightly so that when the three pieces came together the three points touched each other in the center where they were less objectionable than as three separate points. The top was about the size of a half dollar and was nothing more or less than a tough piece of leather nailed or screwed firmly to the upper end of the three pieces, after the latter had been cut slightly at an angle so that they would present a flat surface when spread apart, tripod fashion. The tripod screw had been shortened and its head cut away to two small "ears" that engaged shallow slots on the under side of the leather washer, the camera being tightened up by the simple expedient of turning it around on the screw. The user explained that he expected to renew this leather top from time to time, but the device gave him a very simple unobtrusive tripod that was light and almost instantly opened out or closed together. In appearance it was hardly more than a stout cane; in fact, with its one strong point made up of the three smaller ones, it had often served a good purpose in hill climbing. It was so unobtrusive that he frequently used it without even his subjects realizing that he was not holding his camera in his hands. Best of all, he never worried about its possible loss, knowing that a new one could be made, except for the cut-down tripod screw, in a spare half hour from material easily obtained and costing him almost nothing.

The Light on the Background

No, Archibald, this isn't something intended for the studio man, but for the average amateur who uses no small part of his film or plates in making pictures of his friends and relations, before what may be called natural backgrounds. He has perhaps learned that the clear sky does not make a good background and that a brick wall or boarded side of a house is not much of an improvement, despite the fact that the face and features come out a little better. He sees reproductions of prints in which natural backgrounds have good quality through being subdued in tone, and he wonders why his own efforts in the same direction do not turn out as well. It is all a matter of lighting, or rather, lack of lighting. The natural background should be in shade or in a diffused light. And this doesn't mean that the particular part of the landscape selected for a background must be shaded by something large enough to prevent the light reaching it; the same result is secured by having the light somewhat behind the material making up the background. And this, in turn, does not mean that the subject or subjects are necessarily lighted from behind. It is not diffcult to locate a spot where the background presents its shade side to the camera, and yet the subject in front thereof be lighted from the front by reason of an expanse of brilliant sky behind and above the camera. Such an arrangement is particularly easy where some natural light obstruction occupies the space at the side that extends from the natural background to a point well to the side of the camera. The worker who aims to make this class of pictures, standing and grouped figures before a natural background, will do well to study these points. To his untutored eye there will be but little difference between a well lighted background that will come out a jumble of spots that is most distracting, and another background that will be pleasingly dark and subdued in the finished print. But a little study of the different conditions will enable him to see the difference and make a wiser selection based thereon.

Combined Toning and Fixing Bath

An Ohio correspondent wants a good combined bath for some printing-out paper that he intends using. To make, dissolve half a pound of hypo, eighty grains of table salt and a quarter of an ounce of bicarbonate of soda in a little water and then make up to forty ounces with additional water. For the gold solution, dissolve a fifteen grain tube of gold chloride in fifteen drams of distilled water. For use, take one dram of the last solution to ten ounces of the first, immerse the prints and keep moving for about fifteen minutes, at the end of which time the prints are fully fixed and toned to a cerain stage. If wanted toned further, allow to remain longer. For still deeper tones, increase the amount of the gold solution, up to double, but of course the prints must be allowed to remain in the bath long enough to become fixed, therefore the weaker solution, as advised, with an increased immersion, is best if sufficient depth of tone is secured without too long immersion. A good washing to free the prints from hypo completes the operation.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

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A. E. Davies, Director Western Lantern Slide Division, 1327 Grove St, Berkeley, Cal.

Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4606—P. Van Denburgh, 4557 44th St., San Diego, Cal.
2½x4¼ and 3¼x5½, various papers, of local scenes; for anything interesting. Class 1.

4607—Prof. George E. Kulp, 1201 State St., Erie, Pa.
4x5, various papers, of marine and landscapes; for the same. Class 1.

4608—Robroy Price, 309½ Main St., Fort Worth, Texas.
For the most part 4x6 and smaller, developing paper, of aeroplane accidents, flying formations, clouds, all taken at aviation field; for anything. Class 1.

4609—Louis A. Kumm, 307 Greenwich Ave., New Haven, Conn.
Class 2.

4610—Arthur Kettner, R. F. D. No. 2, Box 37, Hector, Minn.
1⅝x2½, 2¼x3¼, 2½x4¼, and 3¼x5½, various papers, of comic, landscapes, pets, etc.; for, not particular, but would like to exchange for views of California. Class 1.

4611—Elbert M. Morey, 239 Iriquois Ave., Detroit, Mich.
3¼x4¼ and 3¼x5½, various papers, of scenery and historical spots different parts of United States and Canada, figure studies, portraits, etc. Good work only. Want same in exchange. Travel extensively and have some good photographical results. Class 1.

4612—Sayomatsu Watanabe, Koyamachi, Wakamatsu-City, Aizu, Fukuhimaken, Japan.
Class 2.

4613—U. A. Donati, Santa Fe, N. M.
3¼x5½ and larger, of portraits and views; for art pictures and portraits. Class 1 .

4614—Edward Ament, R. F. D. No. 2, Geddes, S. D.
Post cards, developing paper, of farming scenes, landscapes, people; for farms and city scenes, landscapes, tractors and general views. Post cards only. Class 1.

4615—Bruce Stone, R. F. D. No. 1, Box 98, Jackshoro, Tenn.
3¼x4¼, developing paper, of landscapes, children, pets, railroad and mountain scenery; for nudes and figure groups and good photographs of all kinds. Class 1.

4616—Rhea & Odon, Box 57, Oakman, Ala.
3¼x5½, 4¼x6½ and 5x7, various papers, of photographs, landscapes, views and post cards; for the same. Class 1.

4617—F. L. Grant, East Hampton, Conn.
Up to 8x10, of landscapes, views, and flower studies only; for the same; also hand-colored prints, any subject, for the same. Class 1.

4618—J. E. Dow, Big Sandy, Texas.
Class 2.

4619—Bert Speare, 250 Briscoe St., London, Ont., Canada.
5x7, 8x10, and enlargements to 20x24, various papers, of scenery and waterfalls; for good scenery or anything of interest, nudes or semi-nudes. Class 1.

4620—Merle G. Chesley, R. F. D. No. 4, Augusta, Maine.
Class 3.

4621—M. Andrus Locke, 26 Buffalo St., Castile, N. Y.
4x5 and 5x7, R. B. Auto Graflex Press prints, various papers, of landscapes, historical and miscellaneous views of Genesee River and historical Indian buildings; for landscapes, Northwest scenery, Southern and tropical islands scenery. Class 1.

4622—Lovic Meredith, Allens Creek, Tenn.
Standard size stereoscope, various papers, of various subjects such as scenery, animals, nature studies, etc.; for the same. Work must be good and properly transposed. Stereo views only. Class 1.

4623—L. L. Yokley, R. F. D. No. 2, Box 5, Baileyton, Tenn.
Any size up to 5x7, developing papers, of views of East Tennessee hills, valleys and mountains; for any thing of general interest. Class 1.

RENEWALS

1980—Ansel Kisner, 306 Blaine St., Fairmont, W. Va.
3¼x5½ and 5x7, various papers, of landscapes and water falls; for general views, figure studies and nudes. Class 1.

2095—G. G. Stortz, 2424 Germantown Ave., Philadelphia, Pa.
3¼x5½, developing papers, of historical and miscellaneous views; for all kinds, portraits excepted. Prints only. Class 1.

2498—Dr. B. B. Sprout, Room 216, First National Bank Building, Williamsport, Pa.
2¼x3¼, 4¼x6½ and 5x7, also enlargements up to 6½x8½, various papers, of miscellaneous subjects and speed work; for the same. Class 1.

3027—C. F. Small, 361 Hassalo St., Portland, Or.
Class 2.

4391—Geared L. Cole, R. F. D. No. 3, Dedham, Iowa.
2½x4¼, various papers, of subjects around the farm and the great outdoors; for anything interesting but only good ones. Post cards only. Class 1.

4438—W. E. Ravens, R. F. D. No. 1, Tekoa, Wash.
Class 2.

4470—Victor S. Stephenson, Box 514, Ashville, N. C.
Back from the army and will exchange lantern slides and post cards. Class 1.

4488—Walter L. Saunders, 215 Church St., S. Williamsport, Pa.
Class 2.

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

Portland Camera Club

The Portland Camera Club, Photographic Section, Portland Society of Art, elected the following officers at its annual meeting on May fifth: Francis O. Libby, president; Roger P. Jordan, vice-president; William T. Starr, secretary-treasurer; George MacDonald, print director, and Harold Ayer, lantern slide director. Mr. Starr's address is Box 661, Portland, Maine.

California Camera Club

Friday evening, May ninth, a demonstration and talk on making contrasty negatives suitable for bromide prints, by the copper and bromide method of reduction, was given by C. A. Love. Mr. Love demonstrated his method of using a fifty per cent solution of both copper sulphate and bromide of potassium to bleach the negatives; then, after a short washing, developing with the usual negative developer, and after again washing, placing in a hypo solution until the required reduction was obtained. The negatives submitted for illustration were all reduced to the desired stage, showing that the results were under absolute control.

May eleventh again saw many of the club members participating in one of the monthly outings, this time to Moss Beach. A good time, successful pictorially as well as socially, was enjoyed.

Commencing May fifteenth, the Print Committee will have on the walls a collection of beautiful prints, the work of C. A. Love, one of the most advanced of our fellow members.

This year's outing to Yosemite Valley, from June fourteenth to twenty-second, will be a record breaker, judging from the number who have already secured reservations. It will be personally conducted, the chairman of the committee, assisted by members who have a thorough knowledge of the valley experience in outings, looking out for the party. Arrangements are also under way for a Lake County outing from August thirtieth to September eighth. This, however, must be limited to a party of one hundred and reservations are now being made.

OUR BOOK SHELVES

"Birds of Field, Forest and Park"

We have, on authority of Mr. Pearson, secretary of the Audubon societies, the statement that during the past ten years, more bird books have been sold in this country than during the entire previous period. The reception accorded "Birds Through the Year" has inspired the author, Albert Field Gilmore, to prepare this more exhaustive work, based on his more than thirty years of observation of bird life. The book, while full and informative, does not aim to present the science of ornithology, but rather, to give an intimate acquaintanceship with the some one hundred and fifty varieties of birds that are described. It is the kind of a book that makes its own appeal; the kind that one becomes interested in without expecting to do so; the kind that creates an interest where one did not exist before. There are forty full page illustrations, eight of them in full colors, and the book is handsomely printed and bound. Published by the Page Company, Boston, Massachusetts; price two dollars and fifty cents net, postpaid twenty cents additional.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Bert Crandall of Palo Alto drove into the city recently to replenish his stock.

H. A. Parker of Pasadena is very busy these days and is selling a lot of Movettes.

Ossian Hagman of Watsonville is as busy as ever. His daughter is an able assistant.

J. C. Vassar of Salinas has an addition to his houseful. More joy and more expense for J. C.

Edwin Rick of Santa Barbara is setting a fast pace for the other kodak finishers in that town.

John Hall and Frank Aston are still running neck and neck at San Luis Obispo; both as busy as bees.

C. C. Green of Salinas is up and about again after some spell of illness. We were glad to see him looking so well.

J. C. Gordon of San Jose has been compelled to increase his force in order to cope with his increased kodak business.

Al Heimer and the rest of the force at the American Film Company's plant at Santa Barbara are just the same good old bunch. They certainly make one feel at home there.

The Craig & Mosher plant on Hayes Street, San Francisco, has been taken over by Mr. Browning, formerly of the Chicago Copying Company, who will conduct it under the name of the California Portrait Company.

Mr. Rae With de Roos

Louis E. Rae, so well and favorably known to the photographers of San Francisco and vicinity through his long service as a salesman of photographic goods, has accepted a position with Henry G. de Roos, the popular Third Street dealer. Mr. Rae has charge of the lens and high grade camera department of this busy store and will employ his usual best efforts in seeing that the wants of the patrons are filled in the best possible manner and that any information wanted is afforded. Mr. Rae's knowledge of lenses and their capabilities is such that he can be of great assistance to prospective buyers and those interested in that direction should have no hesitancy in calling upon him for information and advice.

X-Ray Department Important

Radiography, or the science of the X-Ray, has become one of the most important features of J. T. Warren's work in connection with the Honolulu Photo Supply Company, the interest in this very important field being but a natural development from the general interest he finds in all phases of photographic work. Radiography, by which pictures are made through opaque objects, has made possible some of the greatest progress in science during the past few years.

About ten years ago Mr. Warren secured agencies and sold several small, portable, high-frequency outfits; and from that beginning it became easier to place other and larger equipments. Mr. Warren has since equipped a number of physicians and hospitals in the Islands with the most modern radiography appliances; an equipment, now en route to Honolulu for Drs. O. E. and A. C. Wall, and one of the largest and finest for the Kula Sanitarium on Maui, being the latest.

Radiography has received more of a stimulus during the last three years of the war than it would have had in many years of normal life, every wounded man being radiographed. According to accounts given in radiographic journals, radiographic equipments were perfected in a portable form, the power derived from the engine of the automobile carrying the equipment to the dressing station, it being vitally necessary that the examinations be made at the earliest possible moment. No efforts were made by the surgeons to remove the shell or shrapnel till they had been "localized" by the radiographer. Aeroplane radiographic units were also in use, the motor of the aeroplane being em-

ployed to run the machine, permitting aid to be quickly carried to far-distant groups of wounded.—*Pacific Commercial Advertiser* (Honolulu).

Photographs by Ravell at the Albright Art Gallery

The collection of photographs by H. Ravell, which was on view in the gallery during the last week in February and all of March, is very unique and valuable. These photographs are technically known as gum-prints and have all the painter's quality in their execution. They do not impress one as photographs but rather as work directly from the artist's brush. The photographs were made by H. Ravell who is now in Santa Barbara. Many of the pictures were taken near Carmel, California, a seashore of much variety where the fantastic cypress trees with their twisted dramatic forms produce wonderful compositions against sea and sky.

Gum-printing is a method of fixing pigment to paper, the image being given by a photographic negative, and the lights and darks by the depth of printing. The materials used are paper, gum-arabic, or gelatin bichromate of potassium, and pigment. The paper is covered with a solution of the three ingredients and when dry is exposed to the light in contact with a negative. It is then soaked in water until that part of the pigment not fastened to the paper by the action of light is washed away.

This is but a short description of the remarkable exhibition of photographs shown at the Albright Art Gallery. It was seen by many art lovers and appreciated especially by all of those interested in artistic photography. —*Academy Notes.*

"American Pictorial Photography, 1920"

The Pictorial Photographers of America propose to publish their first volume of reproductions of selected examples of the work of American pictorial photographers about November first. The intention is to make this book in no respect inferior to "Photograms of the Year", and an announcement has been gotten out to invite co-operation in the work on the part of all photographers. Prints submitted should be sent, at once, to Editorial Board, P. P. A., 122 East Seventeenth Street, New York. The book, the announcement advises, will be about 8x11 inches in size, will contain about a hundred large, full-page plates, together with about thirty-two pages of text dealing with the progress of pictorial photography in this country during the current year. It will be printed on fine, coated paper and attractively bound in boards. The price will be two dollars and fifty cents and orders should be sent to the sales agents, Tennant & Ward, 103 Park Avenue, New York.

Illinois College of Photography

A very pleasant evening was spent in the College parlors St. Valentine's Day, when President and Mrs. Bissell entertained the Faculty and students. Several numbers by the College orchestra, together with some vocal solos and impromptu speeches, aided in helping those present have an enjoyable time.

Stephen R. Hardwick of Belmond, Iowa, has recently joined our ranks after leaving those of the army. A recital of his experiences in foreign service is exceedingly interesting. Mr. Hardwick was aboard the "Antillas" when it was torpedoed in the Bay of Biscay.

Another young man to enroll with us after being "over there", is Harry Y. Mory. Mr. Mory is a Japanese who, prior to the war, was a Government interpreter stationed at San Francisco. However, when the call came he was ready to "pack up his troubles in his old kit bag, and smile, smile, smile".

When the participants in the College Camera Club Masquerade assembled at the Club rooms Friday night, naturally each one expected to receive the prize for the best "make-up". The winner of the palm was Mrs. Geo. F. Stine. A. L. McReynolds came in for a close second.

The motion picture class is beginning to take laurels unto itself. Recently one of its comic productions was shown at the Star Theatre in this city, and brought forth much favorable comment. Under the direction of "Scenario Director" R. E. Embleton, we predict success for the cinematographers.

We have just been informed of the death of Lieutenant Howard N. Tandy, serving in the Air Service of the United States Army. During a flight at Park Field, Memphis, control of the machine was lost, and the lieutenant was killed instantly by the machine crashing to the ground. At the time of his fatal accident, he was in charge of photography at Park Field.

Earn While You Learn

When the war began we had only a few aeroplanes in this country, but when it closed we had thousands. During the war a great aeroplane industry grew up and a great branch of the army was organized—the Air Service.

How would you like to fly? Do you realize that the flying age has come and that aeroplanes are going to be as common as automobiles? "Over there" thousands were used. You have heard of the thrilling fighting they did, but do you know that most of the time the flyers were sent out to take photographs? The cameras on the aeroplanes were the "eyes of the army". The enemy could hide nothing from them. They looked down from above and made a perfect record of every movement of the enemy. The photographs showed his trenches, his machine-gun emplacements, his long-range artillery and the location of many other things that it was necessary for us to know. But the making of photographs from the air was not easy. It had to be developed and perfected and thus sprung up the science of aerial photography.

Flying is going to be the big game in the army and you can depend upon it also that your Uncle Sam is going to do wonderful things with the aid of this new and intensely fascinating science of aerial photography, for this product of the war is not for war only, but promises to be even more useful during peace. Its possibilities are unlimited. From aerial photographs you can make btter maps than by the old methods. From the air you can photograph and survey inaccessible areas, obtain comprehensive views of great construction projects and watch the progress of the work. You can study stream and coast lines, railways and highways, and locate uncharted sand bars and other dangers to navigation and do half a hundred other useful things. Why not become an aerial photographer and earn while you learn?

The army will have a school of aerial photography and expert aerial photographers from "over there" will be the instructors. The school will be located in a pleasant part of the country, with the best of living conditions. Uncle Sam will give you absolutely free your food, clothing, lodging and instruction, and pay you besides. Those that wish to fly and can make good photographs from the air may be placed on flying status and receive an increase of fifty per cent in their pay. The pay is "velvet" and will be according to the following table:

Grade	Non-flying Status per mo.	Flying Status per mo.
Master Electrician	$81.00	$121.50
Sergeant 1st Class	51.00	76.50
Chauffeur 1st Class	51.00	76.50
Sergeant	44.00	66.00
Chauffeur	44.00	66.00
Corporal	36.00	54.00
Private 1st Class	33.00	49.50
Private	30.00	45.00

Opportunities for promotion are excellent. In a photographic section there will be a comparatively large number of non-commissioned officers of the grades shown in the table. After one year's service the unmarried soldier who is under thirty years of age, is a citizen of the United States, is physically sound and of good moral character, is eligible to compete for provisional appointment as Second Lieutenant and thus begin a career for life, if he so desires, as an army officer.

Men who have served in the Regular Army or in the Emergency Army are privileged to enlist for one year or for three years (as they choose) without being listed thereafter in the reserve as available for future service if necessary. Those who have never served in the army may enlist for three years.

Vacancies exist in aerial photographic units or sections in Honolulu, Hawaii, Philippine Islands, Panama and in different parts of the United States, and therefore there is opportunity for varied travel. With this and with liberal furlough privileges during peace, free food, clothing, lodging, medical attention and healthful recreation and a steady job with no lay-offs, the wide-awake young man will realize that a very attractive offer is being made to him.

If you decide to enlist in this attractive branch of the army, you should apply to the nearest army recruiting officer. Recruits will eventually be sent to the Aerial Photographic Recruit Depot at Langley Field.

If information is desired in addition to that furnished by the recruiting officer, write to the office of the Director of Air Service, U. S. Army, Photographic Branch, Washington, D. C.

CAMERA WANTS

Advertisements of the above nature shown below will be inserted under this heading at the rate of fifty cents each insertion, for twenty-five words or less; each additional word, two cents extra, cash with order. Those of positions wanted inserted once free. No business advertisements accepted.

WANTED Pictorial negatives of sea gulls in motion, marine views and landscapes. Send sample print and price of negative. Address Van de Grift's Art Studio, Fort Wayne, Ind.

FOR SALE Last 10 years of "Camera Craft", in perfect condition, for $5.00 the lot; buyer to pay express from Coalinga, California. Frank Foster, Oilfields, Cal.

SALE OR TRADE New Brunswick, plays Victor, Columbia, Edison records; cheap for cash, or trade for late model Compact 3A Graflex or high grade 5x7 view or both. Address A. C. S., care "Camera Craft", San Francisco, Cal.

POSITION WANTED In photographic studio as printer or general assistant. Expert in all processes. Good dark-room hand, proficient in developing plates, films, copying, enlarging, mounting and outdoor operating. Can use own ½ plate outfit. In small business of own at present but desirous of change. Wife is an expert photographer, clever operator, especially with children. Good retoucher and receptionist. Address Cecil F. Watkins, "Moss Bank", Etchingham, Sussex, England.

STUDIO FOR SALE In Nevada. Is paying better than $3000.00 net. Has an A1 reputation and no competition. Thoroughly modern and complete in equipment. Will sell at invoice price. If you are interested and have the cash to talk business, here is a proposition that will pay for itself in considerably less than one year. Owner has satisfactory reason for selling. Address E. F. N., care "Camera Craft", San Francisco, Cal.

FOR SALE 8x10 Century Portrait camera, $25.00; 10x12 B. & L. Protar lens, $65.00; Wold Air Brush gauge and tank, $20.00; 1 lb. magnesium powder, $5.00; 2 packages Blitz light powder, $1.00; 6 8x10 Universal holders, $6.00; 8x10 B. & J. developing tank, $5.00; 2 camera stands, $5.00 each. $100.00 buys the lot. Room 203, Masonic Bldg., Sacramento, Cal.

WANTED Tessar IC lens, f-4.5, 4½-in. focus, in barrel, without shutter. R. E. Crockett, 918 North 40th St., Omaha, Nebr.

WANTED Lady printer for kodak work. Good opportunity for advancement; also general assistant, one who can retouch preferred. Rich Studio, Bemidji, Minn.

POSITION WANTED By a first class receptionist and to take orders in a studio in Boston, Mass. L. M. Miller, 1 Grove Place, East Orange, N. J.

WANTED Conley Panoramic camera complete with fans, adjustable diaphragm, using 4x5 film, first class working order. State lowest cash price. I. C. Adams, Calistoga, Cal.

WANTED A first class commercial photographer, state where last employed and salary wanted; permanent position to right party. Address C. P. S., care "Camera Craft", San Francisco, Cal.

WANTED Book, entitled "Cassell's Cyclopedia of Photography"; a first class stereopticon or magic lantern outfit; also an ultra photomicrographic outfit complete; will purchase or exchange beautiful Windsor organ. Send description and prices to R. Millar, 600 Washington Blvd., Chicago, Ill.

ENLARGING OUTFIT Wanted cheap, 5x7, preferably Simplex. Rich, Bemidji, Minn.

WANTED A developing business in San Francisco, centrally located, small store or counter will do on the street, but I want to be able to take in rooms at back or above. Answer George, care "Camera Craft", San Francisco, Cal.

FOR SALE Shoberg portable skylight with friction wheel spark ignition and reflector, $18.00; Nichol's portrait flash lamp, complete, $7.00. C. W. Koehn, Route 1, Box 48, Lakefield, Minn.

WANTED One set of ray filters. State condition and lowest cash price. Western Photo Company, 47 Kearny St., San Francisco, Cal.

RETOUCHING And coloring for particular photographers. Specialist on copies. Special attention given to out of town work. Prompt service, right prices. Emerson P. Beers, 539 41st Ave., San Francisco, Cal.

FOR SALE Commercial plant occupying entire floor, fully equipped. A number of store customers can be turned over to purchaser. Address C. P. A., care "Camera Craft", San Francisco, Cal.

FOR SALE One 8x10 Scientific portrait lens, f-4, bargain price, $40.00; one 7a 16½-in. focus Goerz Dagor, bargain price, $110.00; would exchange either for 14-in. focus Heliar or Bausch & Lomb Tessar IC f-4.5. Address A. J. F., care "Camera Craft", San Francisco, Cal.

FOR SALE 8x10 Portrait Euryscope, perfect condition, list $115.00, sell for $85.00. Address M. G. L., care "Camera Craft", San Francisco, Cal.

WANTED Stereo Graflex, must be cheap and in good condition for cash. Address C. A. Reiner, 316 Cherry St., Toledo, Ohio.

FOR EXCHANGE 3A Autographic Graflex, 8-in. f-5.6 Cooke lens and case. Want 3¼x4¼ Telescopic Revolving Back Graflex, f-4.5 lens. Will pay a cash difference. R. H. Frazier, 1200 Pine St., St. Louis, Mo.

WANTED Negatives, mountain landscapes, nudes, bathing girls, and art subjects. Send print and price, pictures will be returned if not purchased. The Photo Shop, Paris, Tex.

WANTED Crack-a-jack solicitor to take partnership, work on salary or make other business arrangement with me. I am a good photographer, have automobile and complete home-portrait outfit. No cheap man wanted, but one first class in every respect. Address Auto, care "Camera Craft", San Francisco, Cal.

FOR SALE The best one-man studio in California, low rent, no coupons, high grade stock, fine equipment. $700.00 cash. Ellis, 530½ Kay St., Sacramento, Cal.

FOR SALE Dallmeyer Bergheim soft-focus lens, 29 to 45-in. variable, cheap. J. A. Slaughter, 1724 Sanchez St., San Francisco, Cal.

FOR SALE 11x14 Century Studio Grand outfit, new, cheap. J. A. Slaughter, 1724 Sanchez St., San Francisco, Cal.

WANTED To rent the only studio in a town of 2000 to 5000 in Southern or Central Wisconsin. Would take lady photographer as partner. Address Lock Box 444, Warren, Ill.

FOR SALE The only studio in hustling town of 2000 population; $2000.00 per year. $200.00 cash takes it. For particulars, write F. E. A., care "Camera Craft", San Francisco, Cal.

XXVI No. 7 JULY, 1919 Price, 10 Cent

CAMERA CRAFT

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A Photographic Monthly

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Continued on Next Page

AN AT-HOME PORTRAITURE
By D. NATHAN SEDERQUIST

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL XXVI JULY, 1919 No. 7

At-Home Portraiture

By D. Nathan Sederquist

With Illustrations by the Author

BABY BRIGHTEYES

HOME portraiture is a subject that has always possessed a peculiar fascination for me, in so far as it presents the possibility of making pictures in the home, pictures made amidst surroundings that convey through the eye perhaps as much of a person's personality as do the clothes being worn. Home portraiture also presents the possibility of securing more characteristic pictures by reason of the use of accessories that are naturally encountered in a person's normal home existence. It further permits the introducing of peculiarities in lighting, pleasing effects that could not easily be procured in a portrait made under studio conditions. And best of all, these results will go far towards pleasing one's prospective customer.

Any attempt to produce in lighting effects, the similation of studio lightings, seems, in my opinion, to be defeating the original purpose of producing pictures in the home. Here we find an atmosphere of comfort, ease, and above all, perfect naturalness. The persons

being photographed unconsciously act at ease in surroundings with which they are perfectly familiar, and feel that the home atmosphere should be an essential part of what we endeavor to portray. The pinning up of a background at right angles to a window and the using a reflector against the shadow side of the face, thereby making the portrait appear as though it might have been taken in a studio, to me, does not seem conducive to the proper effect for home portraiture. The labeling of a finished article of this kind "A Home Portrait" does not convey to my mind the impression which I have when I think of home portraiture in its fuller possibilities. The same thing can be taken in a studio under conditions which are made as near ideal as possible for purposely doing that particular kind of work. Consequently, I can see nothing of interest in making pictures, similar to the type just mentioned, outside of my studio.

AN UNCONVENTIONAL LIGHTING

In home portraiture there is certainly a field that offers unlimited opportunities for an operator to bring into play his powers of imagination in the making of pictures with the aid of his surroundings; pictures that in originality, cannot be duplicated elsewhere. To the observer, such pictures will not only present a likeness of the subject, but they will, unobtrusively as it were, each tell its little story of interest through supplying such subordinate details as will afford the observer a broader idea of the subject's characteristics. And further, as my experience embraces portraiture in both the studio and the home, one can the better appreciate my reason for not trying to reproduce the type of work I do in my studio, when working elsewhere.

When I leave the studio and enter someone's home, for the purpose of making a set of negatives, I mentally cut the strings of studio technique and enjoy the absence of restraint with which I feel it possible to work. Here I know that if, for instance, the light upon the subject does not happen to approximate a

forty-five degree angle, it does not necessarily matter, just so the effect produced is pleasing. Oftentimes two sources of light can be used to advantage at the same time, one, of course, always subordinating the other. As an illustration, take the home portrait that is made primarily against the light, the subject standing by a window or seated on a window seat, or perhaps sitting or standing on a porch. For the effect we are trying to get, the light coming from the front must be balanced by another light with its source at the side or back in order to avoid getting too pronounced a silhouette effect. If I find available daylight insufficient, I use a home portrait flashlight outfit, calculating my necessary exposure for the daylight, then firing the flash for the secondary light. By this method of working, effects can be produced that cannot be duplicated in any other way of which I have knowledge. Working in this way, a simultaneous exposure will often be sufficient for both the daylight and the flashlight, especially when there is sunlight shining through the window. I set my shutter to work at a slow speed snapshot, about one-fifth second, being sure to have flash machine connected with the shutter release by a T-shaped tubing. By having the short branch of the tubing attached to the camera, the air pressure reaches the shutter first, thereby insuring its action a fractional part of a second before the flash. The amount of powder to be used to secure the proper effect, can best be determined by a little experience, and this last, a few trials will give. As a guide, one can safely begin by using less than would be the case were the flashlight intended to produce the primary light.

THAT SOLDIER BOY IN FRANCE

The picture of the little fellow standing in a chair by the side of a window,

shows the results secured by the method just described. It can be seen that, while detail has been preserved in the highlights by a sufficiently short exposure, detail and softness has also been secured in the shadows by the simultaneous use of the subordinate flashlight. By occasionally using this method of working it is possible to produce, in the home, pleasing portraits that, under daylight conditions alone, could not be secured in a studio where it would be impossible to maintain a harmonious relationship between the highlights and the shadows. This is due to our inability to sufficiently expose the shadows before having grossly over-exposed the natrually brilliant highlights. By the use of portrait films,—which I use from choice, having found them nearly ideal for this purpose, and working in the manner just described, halation is almost automatically overcome.

Oftentimes, in the making of certain effects, whatever daylight illumination may be present can be entirely ignored. For instance, the portrait of the boy in front of the fireplace, shown in the illustration. The flashbag was lifted off its metal stand, placed on the floor a little out from and to one side of the fireplace. It rested backward against the metal stand in order to secure an upward slant to the illumination, the flash being the only source of light. A small reflector of some kind is nearly always required, as it is almost impossible to procure a satisfactory roundness if the highlight break in too abrupt shadow. With daylight illumination, this picture would have been impossible without a prolonged exposure, and this last was out of the question with my little subject, as he was far too active, and a daylight exposure would have shown a different angle of light, one that in this case, would not have been as effective.

One who intends to make home portrait work a commercial success, must,

"THE TURKEY MAKES GOOD CHRISTMAS DINNER"

"THAT IS CERTAINLY FUNNY"

of necessity be able and prepared to either utilize the existing light conditions as they are found, or he must have the means, through some form of artificial illumination of securing light where wanted. So equipped, and with the feeling of confidence that results from knowing that whatever difficulties of that form which may present themselves can be mastered, one will find himself producing the kind of work that is not made under ordinary circumstances. And such work will usually be quickly appreciated by one's patrons. The class of people by whom home portraiture most appeals is made up of those whose families are familiar with portraiture to the extent that they are quick to perceive any deviation from ordinary types. Then, if one's work also has good technical quality, which we presupposed, there will be no difficulty in finding a demand.

A little discussion relative to the desirability of retaining the proper balance between highlights and shadows, should prove instructive herewith, as the two extremes, intense highlights and inky shadows, are more characteristic of light conditions in the home than in a studio. If, after having the subject in position and observing the light effect, it appears that it will not be possible to get desired shadow detail without over-exposing the highlights, something is wrong, at least for photographic purposes. The old theory of exposing for the shadows and letting the highlights take care of themselves, may be well enough as a generalization, perhaps quite advisable in landscape and like work. But I believe it can be much improved upon, in the case of home portraiture, by keeping in mind the fact that, if one so wishes, the highlights can be as easily controlled, and texture

detail secured, with a normal exposure. Remember that availing one's self of the latitude of either the plate emulsion or that of the paper upon which the prints are made, is not conducive to results of the best quality. One should keep the highlights toned down in key to a depth where, with an ordinary exposure, the sensitive emulsion can record them within its normal range of latitude. The less intense highlights are, the easier one can secure detail in the shadows. The two extremes must be balanced so as to come into normal relationship, making the actual exposures a mechanical performance and the incidental result a certainty. Too often the operator attempts to do the balancing from one end only. He uses a reflector and places it too close to the subject in an effort to force the shadows up in key to conform to the highlights that are too extreme. Begin the other way. Secure diffusion and softness by hanging a cloth or sheet of light material between the subject and the light, or a light stand can be employed and the distance varied as needed. Doing this, one will find that the shadows have become less inky and less in need of reflected light, except for the purpose of blending.

A highlight that, in the photograph, shows no texture, impresses me as being but a poor substitute for a highlight showing texture to the eye. Two equally strong front illuminations, from different sources, should always be avoided on account of their tendency to produce a flat effect. The appearance of depth and roundness, which we have with us in reality, can be produced on the flat surface of a photograph only as an illusion, by the use of lights and shadows. Therefore, any form of lighting that illuminates all the shadows would naturally prevent, in the print, any suggestion of that roundness and form possessed by the subject.

So also in regard to the shadows. A black spot does not truthfully represent a shadow; it is the photographic plate's way of registering nothing. If, when taking a subject, detail can be seen in the shadows, that detail will also be found in the resulting photograph if the lighting has been properly balanced and the correct exposure given. In other words, one should not accept a result that differs from what the eye saw when the lighting was made; one should not photograph until he sees his lighting the way he wishes it to be in the finished photograph.

My method of working is to first compose the picture mentally, after having seen the subject and surroundings, and then, simply proceeding with the object in view of making a reality of what I have mentally conceived. Until that object has been accomplished, I do not try to work with the camera, believing that better results can be achieved by not burying one's head under the focusing cloth until the result, that which is to photograph, is before the lens. The adjusting of the image on the ground-glass should be only a detail, one left for the last moments. It is a mistake to make trip after trip from under the focusing cloth to subject, and back again, as is so often done. By working in this manner one can concentrate entirely on the subject until ready to expose, and then it is the work of only a moment or two to adjust the image on the ground-glass and make the exposure.

Try at all times to use a lens of as long a focal length as available space, the size of room, permits. A lens of short focal length makes the rendering of normal

perspective difficult, if not impossible. Occasionally one finds himself compelled to work in cramped quarters and then certain little expedients may prove of value in avoiding a too pronounced distortion. The placing of the subject in a side position, so as to keep hands, knees or feet in about the same plane as the face, will help to avoid distortion. One can also insure better results by using the camera rather high, as distortion of either the feet or hands is more pronounced the lower the camera, particularly so if the subject is turned forward. I shall not advise the use of any particular lens, as there are so many, all good, that a selection seems a matter best left for each individual to decide personally.

A few thing, which it might be advisable to remember when encountering certain difficulties, may help to illuminate, or at least render less prominent, certain peculiarities in the subjects which one might wish to subdue. In the case of a rather prominent nose, perhaps one only as long as necessary, would hardly wish the slightest exaggeration. Therefore, by using the camera from not too high a position and having the subject's head posed high enough, one prevents the tip of the nose obscuring any part of the upper lip, thus making the nose appear as short as possible. The opposite procedure will accomplish the reverse effect in the case of a too short nose, or one that we might term slightly retrousse. By placing the camera rather high and slightly tilting the head downward, one can bring the tip of the nose low enough to obscure a little of the upper lip, making the nose appear less short than it otherwise would. These and like expedients that are found useful in studio practice, can all be employed as found advisable.

A few words on the subject of expression will not be amiss. I believe that, given two photographs of equal workmanship and artistic quality, the one having the most pleasing expression is the one which will be chosen, and quite naturally so. And I believe that a person's expression can be made to show almost any normal emotion by means of the proper conversation. My experience has been that, by instruction the subject, when ready to expose, that no answer was expected to any remarks, the expression could be made to indicate either pleasure or a proper amount of seriousness, as desired. I believe that a person's expression, normally, reflects, to a great extent, his thoughts. By the use of conversation that will either arouse interest or cause pleasure, one will nearly always succeed in producing, spontaneously, the expression sought. As an example, let me describe the taking of the picture, showing the little fellow by the fireplace made a few days before Thanksgiving. The little fellow was just old enough to take an intense interest in things like horses, cows, and other farmyard animals. The little cloth book, shown on the chair was filled with colored pictures of these animals. I sat on the floor with him and we looked through the pages together. He finally found a large turkey gobbler, and I told him how turkeys made just the nicest Thanksgiving dinner anyone could imagine. I then placed the book on the chair, keeping his interest centered on the turkey, gradually backing away and telling him, in as deep-chested a voice as possible, about a farmer who came out one morning, before Thanksgiving, with a great big axe; and, catching the great big turkey gobbler and holding his head over a block, he swung the great big axe way up high in the air, and brought it down with a "boom!", and the

turkey was no more. But the boom was the report of the flashlight as I exposed, and I believe the resulting expression shows the intense interest of the little fellow. In the case of older people I would, of course, use a less spectacular method. The two young ladies looking at the portrait of a soldier-boy friend, were made to assume their expression by my saying: "I imagine, if that soldier-boy in France, knew at this moment, that you were admiring him, he would perhaps square his shoulders a little more, feeling mighty proud; and perhaps, from then on, become a better soldier". It can hardly be claimed that this remark in itself caused any distinct facial emotion, but through its suggestion of pleasant thoughts, it did result in the expressions shown. These two illustrations are given to show what is meant by the use of conversation. The old hackneyed phrase of "See the little birdie" and "Look pleasant, please," are obsolete as far as I am concerned.

Coming to the development of the negatives, I prefer to handle them in a slightly different manner from the usual A B C pyro formula method. This for the reason that I use Portrait films, for all my work, having found them perfectly adapted thereto. When a film and a glass negative are both developed at the same time in a pyro developer, the film will, upon examination, be found to have acquired a more pronounced stain than the glass negative, by reason of it's two sides being gelatine, whereas, the glass negative has but one gelatine side. This would be an advantage were one trying for excessive coloration, but I believe that, in using the printing methods at present in vogue, better prints can be made from negatives without too decided a color stain.

A developing formula which gives me fine results for either tray or tank, is as follows:

A:	Water	24 ounces
	Metol	24 grains
	Sodium bisulphite	90 grains
	Pyro	1 ounce
B:	Water	24 ounces
	Sodium sulphite to test	60 degrees
C:	Water	24 ounces
	Sodium carbonate to test	40 degrees

The hydrometer used for mixing up the two last solutions is the ordinary one sold by all stock houses, originally made for showing the grains per ounce of silver solutions.

To use the developer, take one ounce of each, add water to make ten ounces, and then add one drop of a saturated solution of bromide of potassium.

By keeping these as a foundation, one may have any amount of developer, in exact proportion and of uniform strength. The metol is included for its properties of giving detail and softness; the bromide to counterbalance any fogging effect of the metol, and I use twenty-four, instead of sixteen, ounces of water, as we have one ounce of pyro, and the metol in addition. By having the sulphite test sixty degrees the negatives do not stain badly, and by keeping the carbonate at forty degrees, one does not force the development of the highlights ahead by leaps and bounds, but gives the developer a chance to thoroughly saturate the emulsion and act in a perfectly normal but positive manner, on

the shadows. The temperature of the developer should always be from sixty-eight to seventy degrees, Fahrenheit, when used.

The normal developing time is from five to six minutes, and clean sparkling negatives will result, providing exposures have been normal. In working by tray or tank, stop as soon as the highlights have developed to the point where they are dense enough, but not opaque. Nothing can be gained by further developing, as the shadows will have included their correct amount of detail, if properly exposed. To those who are making satisfactory negatives, I would advise no change, but for those who are getting rather hard, contrasty results in their home exposures, a trial of the above may prove worth while. Too many negatives are developed far beyond the proper point in the hope of forcing some shadow detail; but the result is only more contrast, thereby defeating the purpose of the longer development. The better plan is to give sufficient exposure for the shadows, originally, and then regulate the development entirely by the appearance of the highlights.

A reducing agent is sometimes useful for toning down too intense lights, locally; but I would not use it unless the lighting was beyond my control when making the exposure. The production of a perfect negative is difficult, and no discredit should fall on one who tries, but the harder one tries the nearer he will come to making them.

A method of introducing one's work to desirable prospective clients, is to use the city directory, of course combined with a certain amount of familiarity with the different locations, in making up a list of names and addresses. Mail out to some of these a set of sample photographs of various types, nicely mounted, using care enough in the selection to enable anyone to form a rather comprehensive idea of the scope of your work. With them enclose a nicely printed letter or card of explanatory matter. The following day, or a little later, make a personal telephone call, not asking for permission to make their photographs, but for permission to call at a stated time for the return of the samples. If the photographs have created any desire for similar work, the prospective customer will usually introduce the subject by asking for further information. If nothing is said at the time of the telephone call, you still have an opportunity to broach the subject when you call for the samples.

The selling power of the samples, and one's own personality, are the two factors upon which one must depend for results. If one happen to be well known in his community, progress will be easier; as, undoubtedly, the prospective customer has a feeling of security when dealing with someone whose reliability is acknowledged. Children's photographs seem to be the ones which can be depended upon to arouse the most interest, and for that reason about two-thirds of my samples are of that kind. By making each baby or child picture fairly alive with expression, one will find that people will not long remain indifferent to his work. This is simply a suggestion, one of several ideas that can be used in making a beginning in home portrait work. Others will suggest themselves, but any or all such plans can early be discontinued as unnecessary as soon as some little work has been done, and has been proved successful.

It is, of course, rather difficult to treat exhaustively all the difficulties that

may be encountered in home portraiture, in a short article of this kind; but I have tried to touch upon what I considered to be the fundamental principles, those which should furnish a working foundation for the beginner. Then, as experience is gained, the solution of further difficulties will invariably suggest themselves as each new problem presents itself. One who has a natural proclivity for making portraiture, can do far worse than take up portraiture in the home. The work offers a comparatively new field, a departure from the making of the more stereotyped portraits to which the public is accustomed and for which their enthusiasm does not seem to be at all pronounced.

Some Simple Framing Material

By Charles A. Harris

With Illustrations by the Author

A departure from the conventional may be justified, if necessary, on the ground of either an accident or an alibi; nevertheless, I believe many camera workers are not averse to making an attempt along original lines, or at least one is led to such a conclusion from an inspection of their results. Given the same materials to work with, these results differ as do the noses of the self-same workers; and yet, we may fairly concede that it is this personal note, or touch, or character given to what is otherwise commonplace, that makes one's picture output worth while. At times one is encouraged and somewhat stimulated to learn, for instance, that the prints he has been admiring, were made on some regular well known paper, instead of something special being used. And then, with his own shortcomings in mind, one marvels, perhaps, as did the novice who wished he "could do work like that", when the real difference was, for the most part, in the size of the prints. Manifestly, therefore, the conscientious beginner

should strive for this individual expression in his work, just so there is "method in the madness", and the other fellow's work is still accorded a liberal judgment. The print having been produced, one may also exercise his preference in the matter of framing, and this is the particular place where we are, if you please, to leave the conventions behind. These suggestions are to invite attention to the possibilities of making up frames for one's pictures, the subject being considered from the amateur requirements and point of view.

The regular picture frame dealer, from his standpoint, might pronounce the materials I have used, simply impossible, but the predominating idea is to secure distinct and original effects without so much attention to the exact perfection of work or material used. The examples reproduced show a variety of these home-made frames, and other available designs and materials will no doubt suggest themselves to the reader as suitable for the production of unique and pleasing effects.

In the July, 1916, issue of this magazine I gave my method of making frames, so I will pass over that part of the subject at this time. Numbers three and five were made from a weathered fence rail, left, of course, in its natural condition. The corrugated lines in the rough surface of the wood, together with a soft silver-gray color, lends itself admirably to the purpose. Number five was made dish-shaped by placing a piece of bevel wood underneath

when cutting the corners in the miter box, the back being later trimmed down flat to accommodate the picture to be framed. Number three was cut in the usual manner, and a beading of the same material added. This last, in this case, proved better than the use of something different. In fact, although quite customary, the use of a gilt beading on a dark frame, particularly for a photo-

graphic print, is objectionable to me. The natural edges of the material in cases like the above, should be made the outer edges of the frame, while the inner or sawed edges may be stained a color to match. A little diluted writing ink, painted on, will do for this. Try a weathered fence rail, if available. Some one asks if a board carrying moss might not be desirable. While such could be used, and the moss made a feature, it would be necessary to "handle with care", or the effect would be lost. Number one is constructed of fine-grained wood of a buff color, cut from a box in which imported goods were packed. At the start, the material looked rather unpromising, but it worked up very nicely. This has a bevel trimming or edging of the same material around the outer edges, and also a narrow inner beading. These trimmings for a built-up frame can generally be bradded upon the side instead of the top surface, so that the nail heads will not show. After being planed the color and texture of this wood suited the picture so well that it was left in the natural condition. Varnish or shellac would have preserved the wood, but the polished or shiney appearance would detract rather than improve.

Number four is made from a piece of three-eighths inch oak flooring material, afterwards shellacked. The results here are quite good, but the thinness of the board made the work of joining it somewhat difficult. A little thicker board of the same material or of maple would be easier to handle in this respect. Number seven is a strip of pine showing a good grain. The inner edges were rounded without a beading and bevel-shaped trimming on the outer edges shows the results of some amateur carving. A three-cornered file was used in making the zigzag lines, and a few nails, the ends being filed into different shapes, were utilized as punches in stamping a design on the wood. This frame was stained a brown tint with, I think, some old pyro developer.

Next in line, number two, was fashioned from a piece of moulding such as is usually found nailed to the wall near the ceiling, in order that pictures may be suspended therefrom. This is introduced to show a style of moulding, cheap and easily obtained, among a variety of others, such as number six, which is a piece of house trimming with a small outer edging. The first was stained green, the latter painted a dull black.

The foregoing are all frames for 8x10 and upward. The smaller ones shown were made up from odd pieces of moulding, utilized in different ways, for smaller pictures. These narrow strips, sawed from larger mouldings, can often be employed when small frames are desired, number eight being an example made from a section of a much wider piece. Some of the frames in this collection were made with a rabbet or rebate for framing with a glass and backing, while others have plain backs for prints that have been mounted on a stretcher. Such frames are easily made, and a few enlargements framed in this manner should prove doubly attractive to the owner who will take the little additional pains required.

Obey something, and you will have a chance of finding out what is best to obey. But if you begin by obeying nothing, you will end by obeying Beelzebub and all his seven invited friends.—Ruskin.

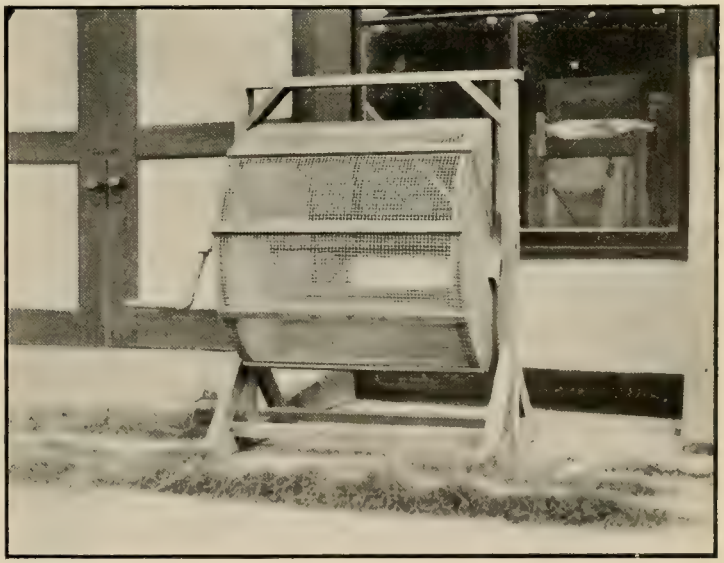
Pictures for Publication

By Frank B. Howe

With Illustrations by the Author

Before me lies a letter that is positive proof of the saying that "looks are deceiving". It is innocent in appearance and merely states that the editor of CAMERA CRAFT has a craving for an article concerning the making of photographs for publication, and the marketing thereof. That sounds simple enough, but since my typewriter (the machine, yes) and I have set about to fulfil the commission, we have discovered that it is vastly easier to sell pictures to magazines and newspapers than to tell others how it is done.

Before we go further, it may be advisable to deny two generally accepted beliefs. One is that it is necessary to have a Graflex or a large view camera, in order to produce marketable pictures. The other is that it is essential to live in a large city, or to go afield, in order to secure salable subjects. In proof of the first contention, I may cite the fact that I frequently make pictures with a Vest Pocket Kodak, in preference to carrying the bulkier Graflex, enlarging them to post card size for selling purposes; while proof of the second proposition will be found by running through half a dozen magazines and comparing the number of big-town pictures with the number of small-town ones, and by noting how many of the pictures, while interesting, are of just such scenes as one sees every day in his own environment. Truly, Hoopersville, Idaho, oddities, events, happenings, when out of the ordinary, are just as interesting to the resident of New York as those of New York are to the Hoopersvillian. But more of this later on.



Home-made device for separating stones from gravel. Would interest a mechanical magazine, a farm paper or a concrete work journal

A friendly editor-friend (yes, there are such things), has kindly made some

suggestions as to what I can write about; and his remarks, taken verbatim, serve as a pretty good starter. "You can tell them how to look for possible markets," he says, "how to size up what particular publishers may want, what kind of prints to send, what to do about prices, what about some text matter with the pictures, what about the return of prints or the sending of duplicates to different publications, and about cover illustrations, and about offering to make special work for publishers, and all that." Quite an outline, indeed, and if we get through it all, it is to be feared that the carbon process man's article, and the story by the dark-room expert will have to wait for the next issue.

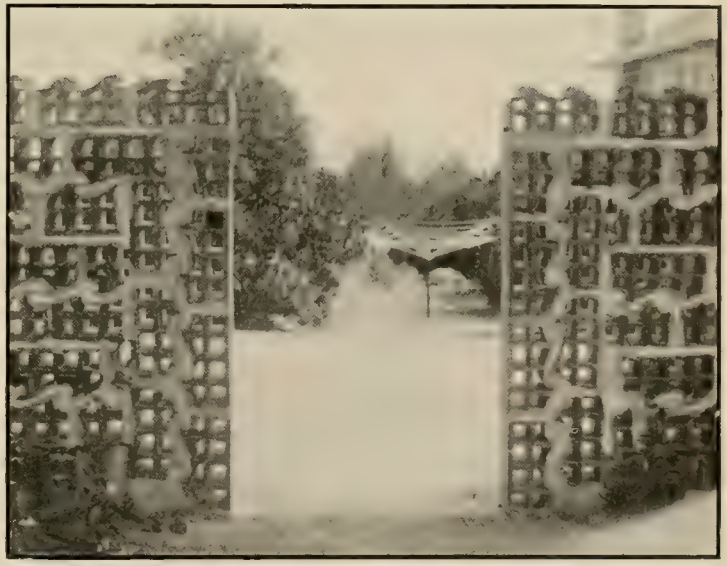
First as to the production of pictures. The chief idea is to get the knack of putting yourself in the place of the man who has never been in your town before. What is there that is done differently from the way other people do it? Perhaps Farmer Smithers, down the road, has a hog that persists in crawling under the fence, and he has rigged up a device, an original one, as a preventative. A picture of this is salable, both because other hog-raisers will find the same thing adaptable to their own use, and because non-hog raisers will be interested in Smither's ingenuity. So much for the possibilities, right around home, in what may be called the commercial line. Pictorialists will find fully as wide a field just as near their own gate. And "pictorial" doesn't mean the pretty landscape, but the story-telling kind of picture, the one having human interest. The way Johnny goes to school on the old donkey's back may be commonplace enough to you, but imagine the chuckle that the Wall Street broker will have when he sees on the cover of his *Saturday Evening Post,* a picture of little Johnny away up there, almost out of sight, on the donkey's broad shoulders, doing his best to keep from sliding off. True, the *Saturday Evening Post* doesn't happen to use photographs on its covers; but their artists make drawings from photographs, and anyway, the figure holds good. In short, the idea is, one must acquire what the motion picture people call the "camera eye". And the recently noted article in these pages calling attention to the fact that John Paul Edwards has the worst scenery in California to work with, but gets about the best pictures produced, points a

This shows what NOT to send. If this odd wind mill filled the space it would be salable; the rest lacks reader interest

moral that is applicable here also. Good pictures are right at your front door, if you want them. Why go farther away?

This, the first aerial policeman, happened to live near me. The picture would be acceptable to almost any aviation journal

As to size, it is nowadays coming to be the practice of editors to prefer small, sharp pictures to larger and fuzzier ones. Anything 3¼x 4¼ or over, is all right; providing, —and note this, that the object you are photographing is the whole thing in the picture. What the editor wants is a picture of that particular thing, not the landscape or background. Fill up your quarter-plate with the main object and, nine times out of ten, an engraving of it, made the same size, will be plenty large enough for the magazine page. Of course, there are publications that require larger pictures; but I am speaking of the general run, rather than the exception; and there are enough of the others, anyhow, so that you don't need to bother with the few fellows who must have the big pictures. But be sure to get the object large enough on the plate. If you're using a kodak, get a portrait attachment. One picture sold at even two dollars will pay for it, four times over, and the additional number of prints sold in the course of a year will be found quite a nice little addition to your total income.



This shows an unusual use of hollow tile, as a fence. Would be salable to a contractors' trade journal or the like

Having made the picture, the marketing of it comes next. The first thing to be done is to go down to the library or through the magazines at home until you locate one that prints pictures of the sort you happen to have. If the publication does not state, on its editorial page, that it does not desire contributions from the outside, it is a pretty safe bet that they are in the market for anything they can use. Make a glossy print, put your name and address on the back of it (a rubber stamp is a good idea), and enclose it, along with a short description (not a literary effort: just the facts, but all the facts), together with stamps for return, in an envelope addressed to the editor of the particular magazine, and mail it. If the description is such that it can be briefly written on the back of the picture, that will do: if not, it can be written on a separate sheet and enclosed with the picture. For the picture herewith we would write: "Machine Made, by J. B. Bright, Hometown, Montana. For removing stones from sand. Consists of wire-mesh drum in which sand is placed when drum is revolved, by handle at left, and falls through and leaves all larger material in the drum."

In the course of from ten days to three months, you will either receive a check from the publisher, or your picture will be returned with the information that it was not available for their use. Let the editor set the price, and take whatever he sends,—it pays in the long run; for, while you may not get as much as you think you ought to on some occasions, on others you will receive much more. And don't send a letter to the editor with the picture. He knows you are sending the picture for him to buy, and if he wants it he will buy it. He is not interested in the fact that you want to sell pictures to help Brother Jim go to college, and will probably think you're untruthful, anyway, if you say so. And lastly, be sure to put enough postage on the package. All appearances to the contrary notwithstanding. Editors are human, and it is unwise to ruffle the editorial temper by sending him stuff, postage due, especially when you want to sell him things.

There are also a number of companies who deal in photographs for newspapers,—syndicates, they are called. By looking through the illustrated publications you will note, in small type below some pictures: "Photo by Underwood and Underwood," or some similar caption. These firms buy unusual pictures and send them broadcast to their clients. When you have something of news value that you think no one else has, it is well to send them to some such company. For example, at a benefit baseball game not long ago, William G. McAdoo threw the first ball. He threw it unexpectedly and nobody but the writer happened to have their camera focused on him at the time. Consequently, every newspaper was anxious to get the picture and it brought in quite a nice price from a syndicate, one that sent it to all their clients. But if any regular press photographer had secured the picture it would have been useless to have tried to sell it, because practically all the newspapers have arrangements whereby their contemporaries in other towns and they, exchange pictures. Unless you have something very unusual, it is better to stick to the magazines, anyway.

It is not ethical or proper to send duplicates of a picture to other publications. If you do not hear from the one it was sent to in a reasonable time, write them,

Industrial pictures are always in demand. This one, showing a conveyor for unloading tuna fish from boat to packing house, would be commercially valuable if accompanied by a brief description of the device and sent to a magazine catering to the canned fish trade

courteously, inquiring whether it was received. If they do not reply, a second equally polite inquiry may be sent. Should no reply be made to this, send them a registered letter, and asking for a return receipt at the post office, stating that you are now sending the picture to other publications. You will then be protected should they later use it, and cause trouble with the second publication to which it has been submitted. But it is very infrequent that one has difficulty of this kind, for most publications are anxious to examine worth-while pictures and purchase what they can use. And it always pays to be excessivly polite. Even though you think the editor is a diddledy dad-burned thief, don't tell him so, because you may want him to do something for you some day, and the chances are he might remember what you told him.

It is not advisable to offer to make pictures "on order" for publications. When the editor has a commission or an opening of that kind, he will run over the list of free-lancers who have been sending him material; select the most promising, and offer him the job. The best way to apply for a "staff job", as such positions are called, is to always send in good stuff.

It is just about as easy to tell one how to become a good reporter as how to find profit in making photographs for publications. A good reporter has the "nose for news", the news sense. The good press photographer must have the "camera eye", the appreciation of what the public wants. In fact, he must have this sense almost as well developed as the editor himself if he hopes to make pictures that will be acceptable. The few examples herewith will give one some idea as to what is salable, but close inspection of the publications themselves is the best. Not only will one get a good idea of what kind of subjects are wanted, but the pictures shown will often give one an idea as to possible pictures that have been overlooked.

In case your local newstand does not carry a large variety of industrial and like publications, the proprietor or the editor of your local paper can supply you with the names and addresses of the leading publications in any field, and a post card request will generally bring you a sample copy. And sending out prints will soon result in a knowledge of an ever-widening field, gradually improving your chances of placing your work.

That is really about all there is to be said on the subject getting and selling prints for publication. It's only a case of using a little common sense in selecting subjects; criticizing your own work unmercifully; and judiciously selecting places to submit them. Of course, one who starts out with the idea that "my work is a hundred per cent better than the junk they do print", hasn't much chance of making a success. But the ability to put oneself in the reader's place is the chief asset in selecting the subject, and the ability to use common sense in submitting prints is the chief requirement of making sales.

Preparing Photographic Solutions

By I. J. Crabtree

Research Laboratory Eastman Kodak Co.

Although the majority of amateur photographers prefer to purchase photographic chemicals in a condition ready for use, in the case of advanced amateurs, professional photographers and motion picture producers who use chemicals on a large scale, it is customary for them to prepare the various photographic solutions from the component chemicals.

In order to be able to prepare correctly any and every solution used in photography a knowledge of the properties of the chemicals used and of the chemical reactions involved during the mixing is essential, though by adhering strictly to printed directions it is usually possible for an unskilled worker to prepare the developing and fixing solutions as generally used. However, instructions for the use of various materials differ, for example, in the case of some developing formulæ it is recommended to dissolve the Elon first, while according to others the sulphite should be dissolved first. Both methods may be right, but if a systematized method of mixing is followed, and especially if the photographer has a knowledge of the reactions involved, then he can proceed to mix any developing solution with confidence, and what is more, he will be able to locate the trouble if for any reason the solution does not work correctly after mixing.

In this article it is the purpose of the author to describe in as non-technical language as possible the systematized method of preparing solutions now practiced in the Research Laboratory of the Eastman Kodak Company.

A solution of any kind is obtained by dissolving a solid or a liquid in another liquid, or solid. The substance being dissolved is called the solute and the liquid in which it is dissolved is called the solvent. The extent to which the solute is

soluble in the solvent is called its solubility and when the solvent will hold no more of the solute it is said to be saturated.

The degree of solubility of any chemical depends on the nature of the solvent and on the temperature, which should always be stated.

If a saturated solution is cooled down to a lower temperature, crystals usually form which settle out until the saturation point is reached at that particular temperature, though in the case of a substance like hypo, if all dust is excluded, crystals do not separate out on cooling, and a so-called super-saturated solution is obtained. However, if a small crystal of hypo is added to the solution, crystals immediately form and continue to grow until the saturation point is reached. The best method of preparing a saturated solution therefore is to dissolve the chemical in hot water, cool to room temperature with shaking, allow to stand, and filter.

When a chemical is dissolved in water the volume of the solution is usually greater than that of the water used, because the particles or molecules of the chemical occupy a certain space when in solution. In case two liquids are mixed, the final volume of the liquid is not necessarily equal to the sum of the volumes of the liquids mixed, it may be greater or it may be less. Thus fifty volumes of alcohol when added to fifty volumes of water at seventy degrees Fahrenheit, produce ninety-seven volumes of the mixture and not one hundred. Moreover, equal weights of different chemicals do not occupy the same volume.

In photography we are concerned only with the weight or volume of each chemical in a fixed volume of the solution, so that when mixing, the chemical should be dissolved in an amount of water appreciably less than that called for in the formula and then water added up to the amount stated.

In photographic practice, solids are weighed and liquids are measured either by the metric or the avoirdupois system.

Although a large majority of photographers use the avoirdupois system of weights and measures, this system is inconvenient and complicated as compared with the metric system.

The metric unit of length is the meter, which means measure. The meter is divided into one hundred parts called centimeters or cms.

The unit of volume is the cubic centimeter, written cc., or ccs. in the plural, one thousand cubic centimeters being equal to one liter or 1 L. The cubic centimeter is sometimes termed a millileter or ml., meaning one thousandth part of a liter, though the term cc. is satisfactory for photographic purposes.

The unit of weight is the gram, which is the weight of one cubic centimeter of water at four degrees Centigrade, at which temperature a given volume of water weighs the most. The gram is written Gm. for short, the capital letter G being used so as to differentiate between Gms., grams, and grs., grains.

For compounding photographic formulæ only grams, cubic centimeters and liters are used, and fractions are always expressed as a decimal, just as in the case of the United States currency which is a metric currency. The beginner should therefore think of grams and parts of a gram as if they were dollars and cents. Thus, 5.35 Gms. corresponds to five dollars and thirty-five cents or five dollars and thirty-five one-hundredths.

In photography the following Avoirdupois System is used:

Weight		Volume	
437 grains	= 1 ounce	60 minims	= 1 fluid dram
8 drams	= 1 ounce	8 fluid drams	= 1 fluid ounce
16 ounces	= 1 pound	480 minims	= 1 fluid ounce
		16 ounces	= 1 pint
		128 ounces	= 1 gallon

Every photographer should be able to convert a formula given in avoirdupois terms into metric equivalents without reference to a table. It is simply necessary to remember that:

15 grains	=	1 gram
1 ounce	=	30 grams
1 fluid ounce	=	30 cubic centimeters
1 gallon	=	4 liters

from which it is readily deduced that:

2 pounds, roughly	=	1 kilogram
1 ounce, roughly	=	450 grains
1 pint, roughly	=	500 cubic centimeters
1 cubic centimeter, roughly	=	50 minims

The foregoing conversion figures are not strictly correct, for example, one gram equals fifteen thousand four hundred and thirty-two grains; one ounce equals twenty-eight and thirty-five hundredths grams, and one fluid ounce equals twenty-nine and forty-three hundredths cubic centimeters. In taking one gram as an equal to fifteen grains, we are making an error of four parts in one hundred and fifty-four, or nearly three per cent, but in photography an error of five per cent in most cases is permissible. Thus if a formula called for four hundred and fifty-three and one-half grains, if this were cut to an even four hundred and fifty, the difference would not be detectable by photographic means, though if a quantity of six and one-half grains were cut to five grains, then the error, twenty per cent, would be serious.

Formulæ should always be given in both metric and avoirdupois equivalents, but in some cases the proportions are given for, say, forty ounces, in one case and one liter in the other. Now forty ounces equals twelve hundred cubic centimeters, so that the several quantities are not equivalent. This leads to error in case the chemicals are weighed out with avoirdupois weights and the solution made up to strength in a liter graduate, though if these quantities are given for thirty-two ounces of solution which are equivalent to nine hundred and sixty cubic centimeters, or roughly one liter, no serious trouble will arise if the above mistake is made.

The order in which the ingredients are given in the formulæ is of importance. In some cases water is placed first, in other cases last, but since all developers are mixed with water, its position should be last in the formula. The ingredients should be given in the order in which they are dissolved, which is as follows: preservative, developing agent, accelerator, restrainer, water to.

In photography two kinds of solutions are used as follows: A solid in a liquid, and a liquid in a liquid. In the case of the first, the misunderstandings which have arisen from time to time regarding the correct method of preparing

solutions of a definite percentage strength is due to the fact that there are three ways of doing it. For example, we can make a five per cent solution of potassium bromide as follows: Dissolve five grams in one hundred cubic centimeters of water; dissolve five grams in ninety-five grams of water making one hundred grams of solution, or dissolve five grams in a little water and make up to one hundred cubic centimeters.

In the first case we have about one hundred and three cubic centimeters of solution and in the second case about ninety-eight cubic centimeters. A chemist would use the second method; but the last given method is used when preparing photographic solutions; the first method is not used for the reason given above, namely, that equal weights of different chemicals do not occupy the same volume.

The percentage strength of a solution therefore merely indicates how much of the chemical is dissolved in one hundred cubic centimeters of the solution.

To prepare a seven per cent solution of potassium bromide, therefore, take seven grams of the salt, dissolve it in a little water, and add water up to one hundred cubic centimeters. If we now measure out one hundred cubic centimeters of the solution we have measured seven grams of the solid.

In the avoirdupois system a ten per cent solution of solid is made by taking one ounce and making up to ten ounces with water. Converting these figures into grams and cubic centimeters we have thirty grams in three hundred cubic centimeters, or a ten per cent solution.

Strictly speaking this is not correct, since one ounce equals twenty-eight and thirty-five one-hundredths grams, and one fluid ounce equals twenty-nine and fifty-seven one-hundredths cubic centimeters, so that one ounce in ten fluid ounces is equivalent to twenty-eight and thirty-five one-hundredths grams in two hundred and ninety-five and seven-tenths cubic centimeters or nine and six-tenths grams in one hundred. The error involved, however, is less than five per cent and for ordinary purposes is therefore negligible.

If a photographic solution is made by any of the above methods, the error involved is less than five per cent and therefore negligible for ordinary photographic purposes, though since the correct method is the easiest, it should be followed.

Although somewhat of an anomaly, it is possible to prepare a one hundred per cent solution of a substance like hypo by dissolving one hundred grams (which do not occupy a space of one hundred cubic centimeters, and dissolving in sufficient water to make one hundred cubic centimeters of solution.

Lastly a ten per cent solution of a liquid in water is made by taking ten cubic centimeters of the liquid and adding water up to one hundred cubic centimeters.

It is often recommended to dissolve, say, ten parts of a solid in one hundred parts of water. Such a statement is meaningless because a solid chemical is weighed, while a liquid is measured, though if the metric system is used, since one cubic centimeter of water weighs one gram, then grams and cubic centimeters may be considered synonymous with parts.

In the case of liquids, parts should be taken as meaning units of volume, and in the case of solids as units of weight. A "part" may therefore mean anything from a gram to a ton, or a cubic centimeter to a gallon, so long as the other quantities are reckoned in the same units of weight or volume.

Thus: "For use, take A three parts, B one part." This may mean take A 300 ccs., B 100 ccs., or A 15 oz., B 5 oz.

If the avoirdupois system is used and the formula contains both solids and liquids, if ounces, liquid, and ounces, solid, are substituted for "parts", the error involved falls within permissible limits. For example, we wish to mix one gallon of solution according to the following formula:

Sodium sulphite	10 parts
Pyro	1 part
Water to	100 parts

Now, one gallon equals four thousand cubic centimeters. Therefore, dissolve four hundred grams of sulphite in water, add forty grams of pyro, and make up to one gallon.

If a formula calls for, say, five drops of a solution, this is a very uncertain quantity because drops of liquid vary considerably in size. The average drop from the usual dropping bottle or burette measures about one minim or a little less than one-tenth part of a cubic centimeter, so that five drops may be considered as one-third of a cubic centimeter or five minims.

Many photographers are accustomed to making up their stock solutions of hypo, carbonate, sulphite, etc., by means of the hydrometer. This method has the advantage that in case the hypo, let us say, has become moist and contains an unknown amount of water, a definite reading on the hydrometer will give a solution of the same strength as if perfectly dry chemicals had been used. When a stock solution is made from the moist chemicals by weighing, the error caused by the presence of water may be as high as twenty-five or fifty per cent.

The hydrometer method has the disadvantage that the adjustment of a solution to the required strength takes considerable time, the hydrometer reading does not convey an idea as to the percentage strength of the solution, while the hydrometer reading varies with the temperature. For instance, if a stock solution is made with hot water and this registers, say, forty-five on the hydrometer, on cooling, the liquid may register forty-eight or fifty. It is therefore absolutely necessary either to make all readings when the solutions have cooled to room temperature, or to prepare a table giving the variation of density of each solution with temperature.

The great advantage of stating the strength of any solution in parts per hundred is that a definite mental picture is at once created of its relative strength while by means of a number of stock solutions it is possible to compound certain formulæ by simply measuring out a definite volume of each solution, thus dispensing with a balance. Thus supposing we have a ten per cent solution of potassium ferricyanide and of potassium bromide already at hand and it is desired to make up the following solution:

Potassium ferricyanide	6 grams
Potassium bromide	2.3 grams
Water to	1000 cubic centimeters

then it is only necessary to measure out sixty cubic centimeters of the ferricyanide

solution, twenty-three cubic centimeters of the bromide solution and add water up to one thousand cubic centimeters and the solution is made.

In the case of very concentrated solutions it is not always possible to use this method, though in view of the time saved and the accuracy of the method, it should be applied whenever possible.

Suppose a formula calls for one-tenth gram, it is impossible to weigh this amount accurately on the usual photographic scale, but by measuring out one cubic centimeter of a ten per cent solution, and adding this to the mixture, the problem is solved.

It is often required to mix up a quantity of solution much greater than that given by the formula, in which case the photographer must perform a very simple exercise in arithmetic in order to secure the desired result. The two following examples indicate the method of solution of such simple problems. First, mix six ounces of solution according to the following formula:

Potassium ferricyanide	4 grams
Hypo	10 grams
Water to	100 cubic centimeters

now, as a fluid ounce equals thirty cubic centimeters, six ounces equal one hundred and eighty cubic centimeters. Therefore, we need one hundred and eighty one-hundredths times four or seven and two-tenths grams of ferricyanide and one hundred and eighty one-hundredths times ten or eighteen grams of hypo. Dissolve these in a little water and make up to one hundred and eighty cubic centimeters.

Again, how would you mix one pint of a seven per cent solution of sodium sulphite?

To make one hundred cubic centimeters of a seven per cent solution we need seven grams. Therefore, to make one pint or five hundred cubic centimeters we need five times seven or thirty-five grams. To prepare the solution, therefore, dissolve thirty-five grams of sulphite in water and make up to one pint.

It is often required to reduce this percentage strength of a solution. For example: How would you mix two gallons of twenty-eight per cent acetic acid, from a supply of glacial acetic acid?

To make one hundred cubic centimeters of twenty-eight per cent acid we need twenty-eight cubic centimeters of glacial acid.

To make one cubic centimeter of twenty-eight per cent acid we need twenty-eight one-hundredths cubic centimeters of glacial acid.

To make eight thousand cubic centimeters of twenty-eight per cent acid we need twenty-eight times eighty or two thousand two hundred and forty cubic centimeters of glacial acid.

Therefore take two thousand two hundred and forty cubic centimeters of glacial acid and add water to make two gallons.

To dilute a solution three times we do not add three times the amount of water but twice the amount and so on. For example: One volume of solution plus two volumes of water equals three volumes of solution, which is three times as weak or three times as dilute as the original.

A stock solution is a concentrated solution to which water is added before use. In the case of simple solutions containing only one salt such as potassium

bromide, sodium carbonate, etc., a ten per cent solution is most convenient because by multiplying the volume of the solution in cubic centimeters by ten we get the number of grams present in the solution. Thus seventy-five cubic centimeters of ten per cent potassium bromide contains seven and five-tenths grams.

The limiting strength of solution which it is possible to make in any particular case depends on the solubility of the chemical, and as the solubility diminishes with temperature a solution should not be made stronger than a saturated solution at forty degrees Fahrenheit, otherwise in cold weather the substance would crystallize out. (The reader is referred to tables of solubilities given in most handbooks.)

A stock solution of sodium sulphite should be made as strong as possible, say fifteen per cent of the desiccated salt, because at such a strength, the solution oxidizes very slowly and will therefore keep, whereas in weaker solutions it combines with the oxygen in the air very readily, and is then useless as a preservative.—*Motion Picture World.*

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

PERMANGANATE REDUCER STAINS: Permanganate reducer sometimes leaves a brownish stain, but this is easily removed by immersing the plate in a weak solution of oxalic acid. I find this reducer excellent for local reduction, its slow working making it more under control. I take two drams of a saturated solution of the permanganate, make it up to six ounces with water, and then add thirty minims of a ten per cent solution of sulphuric acid.—J. K. L., Ohio.

RESTORING PLATINUM PRINTS: A customer recently brought me a number of platinum prints, the whites of which had become yellowed, asking me if I could restore them to their original condition. I judged that the stains were due to the iron salts not having been completely removed when the prints were made, and so reported to a druggist friend with a request for help. He suggested chloride of lime, with an alkali and he dissolved an ounce and a quarter of the chloride of lime and an ounce of carbonate of soda in a pint of water for me to try. It worked perfectly, and I am passing it on for what it is worth.—F. G. H., Delaware.

AN IMPROVISED BACKGROUND: A few Sundays ago I was out to the home of one of my amateur friends and he wanted my help in making a portrait of his collie dog. He had made several with more or less distracting backgrounds through failing to select the right locations or such as were in shadow. I showed him how to get better results by wiser selection and then suggested that, as nothing else suitable seemed to be at hand, he lifted an ordinary shade roller off its brackets and allowed me to use that. This was done, and an excellent background secured, one that would be particularly suited to portraits. The dodge is one I have often employed when working away from the studio.—J. K. L., Ohio.

CAMERA CRAFT
A PHOTOGRAPHIC MONTHLY

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Advertising for the Photographer

Our editorial on the subject of advertising, in last month's issue, brought us several prompt comments, including inquiries as to what we would suggest for photographic workers in a couple of other lines. Aside from those mentioned, the conditions vary so greatly that it would really be quite impossible to advise just what might be best in any particular case. What one should do is to get a strong mental impression of the attitude and line of thought of the average customer that he wishes to interest and then get into the hands of these possible customers some form of advertising that would appeal to such average customer. One carbon worker we know, a man in a small, interior city, has made carbon transfers in watch cases quite the fad in his locality by the simple expedient of furnishing all the portrait photographers and jewelers with samples made on the inner side of old junked cases that he bought for a nominal sum from one of the latter. These he had sand-blasted, and after making sample prints therein, he mounted them neatly on cards and distributed them with the advice that he was advertising the work and people would be asking to see samples. He then got out some circulars, very neat ones, showing a half-tone reproduction of one of his samples and extolling the beauty and permanency of carbon prints, specially made for the purpose; adding that all of the local jewelers and photographers were prepared to show a sample of this beautiful work. The circular also hinted that such use of pictures was quite popular in the large cities, and inability to secure them had denied them the popularity they deserved there in that town. If I remember rightly, the maker did not give his own name and address, as he did work for the trade only.

The man doing amateur finishing could quite easily get up something that would make him many new customers and most favorably impress his older ones. A simple little folder could be gotten out to show the different kinds of finish available, the different surfaces of paper, black and white, sepia on white and sepia on buff stock. For the benefit of the few discerning ones who do not like the too chalky work that the seekers after "snap" impose upon the finisher, he could show three different prints labeled, soft finish, medium finish and hard finish, asking that the customer specify the kind of prints preferred. This last, would, of course, complicate his work a little, but it would be well worth the slight trouble involved. The getting out of such a folder could be made spare-time work, while the prints, made in miniature size by copying several on one plate to be printed and afterwards cut up, need not be a costly proceeding.

Charles Hetherington Comes Into His Own

The old-timers will remember Charles Hetherington, that genial, large framed, large hearted, Charlie Hetherington of the old days. For a number

of years they have all lost track of him, they have asked each other concerning him, they have wondered as to what fate had parceled out to him. The answer comes in an announcement of an exhibition of his paintings at the Art Galleries of Marshall Field & Company of Chicago, held March thirty-first to April twelfth, last. He is sixty-four years old; he began painting four years ago; his exhibition was a success, fifteen of the thirty-four paintings were sold the first six days, the highest bringing a thousand dollars, and he has gone on to Fifth Avenue, New York, with an exhibition that he will then take on a trip to Europe for the war fund of the "Fatherless Children" activities.

It is hardly necessary for us to say more. Financial reverses, repeated ones, failed to down his determination; and, what he has done should be an inspiration to other men confronted by failure, even at the age when most men can see no hope of success. And of the host who knew him but to love him, in the old days, not one but will be happy to learn of his success, to learn that he has at last come into his own. And it is his own. As an American artist of no mean note remarked, upon seeing the exhibition: "I consider him a genius. Who, without any tuition, could have the recognition in the finest galleries in America? Long may he live to paint nature as he sees it, for he certainly sees beauty in form and color."

The London Salon

This, the Tenth International Exhibition of the London Salon of Photographers, requires no introduction, no setting forth of its importance, no high sounding words of commendation on our part. Those of our readers who are interested in pictorial work, know of its importance. And the pictures that are each year submitted from this country form no small part of that exhibition, and play no minor part in making it so truly representative of the advancement of pictorial photography. The exhibition will be held at the Galleries of the Royal Society of Painters in Water Colors, 5a Pall Mall East, London, from the thirteenth of September to the eleventh of October, inclusive. Pictures from this country abroad are to be sent unframed and unmounted, should be addressed: The Honorable Secretary, The London Salon of Photography, 5a Pall Mall East, London S. W. 1, England, and reach there on or before September second, the last day for their receipt. As heretofore, we have a few entry blanks at this office which we will be pleased to furnish upon request made either personally or by letter.

British Import Restrictions Removed

The War Trade Board announces, under date of May 23rd, that the import restrictions of Great Britain have been removed upon photographic apparatus, ferrotype plates, camera shutters and positive papers; adding that it is not possible to speak authoritatively. Those interested in foreign import regulations concerning any photographic goods should address the Division of Foreign Tariffs, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C., that bureau endeavoring to keep informed on the import regulations of foreign governments.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Pitfalls In Copying

No branch of photographic work calls for a sounder knowledge of the art than the copying of photographs, documents, pictures, and the like, and this is more especially the case when the work has to be done with such appliances as are usually found in an ordinary studio. As a rule the quality of the work so done is poor, although the operator himself does not realize it. Copying is to him an abomination, and he does not start on a job with the idea that he is going to get a first-rate result.

There are many points to be observed if the best possible result is aimed at, one of the most difficult problems being properly to estimate the actinic values of the image and its support respectively. If we take an old albumenized print made forty or fifty years ago, we shall probably find that it consists of a purplish image upon a yellow ground, varying from a deep cream to a full cheese color. Here the temptation is to under-expose, through fear of over-exposing the image, but it must be allowed that, no matter what happens, sufficient exposure must be given to allow the high-lights of the subject to develop up to a reasonable density. With experience it is possible to estimate exposures of such subjects with great accuracy, but the inexperienced copyist will do well to sacrifice a small plate in making a strip test, as is usually done in bromide printing. If only a quarter-plate be used upon a portion of a 10x12 subject it will suffice, four exposures of an inch wide may be made, and ratios of one, two, four, and eight times given. For the benefit of those not accustomed to strip exposures we may say that the best method is not to pull out the slide one inch at a time, but to open it fully and to push it in step by step. Thus, supposing that the shortest exposure likely to be of any use is estimated at ten seconds, we open the slide fully and give this exposure; then we cap the lens, push in the shutter so that one inch of the plate is covered (this may be arranged for any size of plate by making pencil lines upon the inner surface of the shutter), and giving a second exposure of ten seconds; successive exposures of twenty and forty seconds are made in the same way, great care being taken not to disturb the camera. We have now exposures of ten, twenty, forty, and eighty seconds upon the same plate, and these should be fully developed, no notice being taken of the appearance of the image until it is fixed. It will now be easy to deduce the proper exposure from the appearance of one or other of the sections. It may be that the strip with twenty seconds is a little too thin, and that with forty too dense; hence we should say that thirty seconds will give the best result. Or even the ten-second one may be too dense, or the eighty-second one too thin; in these cases the appearance of the image should give sufficient indication as to the reduction or increase of exposure which will be necessary.

Another point on which sufficient care is not exercised is the illumination of the surface. Many photographers think that it is only necessary to avoid reflections from the surface of glossy prints and glass-covered pictures, but this is not the case. Any gelatine coated paper has sufficient surface reflection to degrade the shadows if improperly lighted, and it may here be said that much may be done to cut out these surface reflections by using a color-sensitive plate and a yellow screen, even if the nature of the subject does not seem to call for it. By reducing the effect of the surface reflections the yellow screen also helps to remove the great bogey of the copying "grain." Most copies show a great deal more of the texture of the original paper than was apparent to the eye, and this can only be overcome by proper lighting. The process engraver has an ideal method of illuminating his originals by using two arc lamps, one on either side of the original, and by this means he eliminates the little

shadows which are the cause of the trouble. It is a curious fact that many copies are spoiled by "grain" through the use of a large camera and a short-focus lens. The effect of these is to cut off nearly all the front light which would fall upon the original, and to leave only side light to do the work. It is a good exercise to take a print on lingrain paper and to make a negative in which the grain is hardly visible. There is one kind of grain which cannot be eliminated, viz., that caused by fine cracks in the albumen surface which have got filled in with dirt. All that can be done with these is to copy with a soft-focus lens or to interpose a thickness or two of thin celluloid between the negatives and paper when printing.

The development of copy negatives requires to be done rather differently from ordinary direct portrait work. With a copy the image appears practically even all over the plate at the start, and not in stages as in portraits, where the white collar, the face and hands, and the clothing, appear at appreciable intervals after each other. With a copy of the same subject the image would come up on a level, and the operator is apt to think that the plate is over-exposed, and to commit the error of stopping before proper density is obtained. This appearance is due to the slight surface reflections we have already mentioned. In the original the black shadows of the coat are representations of black cloth on which no light is falling, in the copy they are representations of a piece of paper covered with a layer of dark silver particles, the surfaces of which receive exactly as much light as the high-lights of the picture. Therefore we must take care to give as nearly as possible the correct exposure, and then to develop fully, so as to secure sufficient contrast and avoid the flatness to which the superficial nature of the original would naturally tend.

The choice of a plate for copying is an important question. Some operators assert that they can make as good copies on their regular portrait plates as upon any other. This may be so with certain subjects, but with badly faded originals a variety of speed and quality is essential. Although it may seem paradoxical, the best results from very flat and faded originals can often be obtained upon "process" plates in spite of the yellowness of the ground, and such plates should always be used for line subjects, letters, and the like. Ortho plates with a yellow filter are absolutely necessary for most colored subjects. A plate which does not give density readily is not usually much good for this class of work, therefore "ordinary" plates are always to be preferred to more rapid grades. There is no disadvantage in using an orthochromatic plate for any class of work, even without a screen. There will be practically no difference in the color rendering unless a screen be used, so that there is no necessity to stock ordinary and "ortho" plates of the same speed.

A last note of advice we would give the beginner in copying is not to try experiments on a rush job, but to work at leisure when a failure can be investigated, and a second trial made without delaying the execution of the order.—*British Journal of Photography.*

Notes on the Use of Wratten M Filters

Those who are interested in photomicrography know that Messrs. Wratten & Wainwright introduced a series of light filters ten or twelve years ago for that particular line of work. They were designed to give the photomicrographer the power of emphasizing contrast or detail, whichever might be required, by modifying the light used according to the color of the specimen. In their booklet "Photomicrography" the use of these were explained. That book is now out of print; and to meet the need for guidance in the matter, the Wratten Division of Kodak, Limited, London, has published "Notes on the Use of Wratten M Filters," price three pence.

These notes indicate some additions to the list of filters, including a neutral one, transmitting about three per cent of the light without modifying its colors, for use when focusing with a powerful illuminant, or for lengthening the exposure when otherwise it might be inconveniently short. Another is a blue filter of high efficiency, which does not pass any red; and a third is one which converts the light from a metal filament lamp to equivalent daylight, and can also be used with the Pointolite lamp and with the smaller powered half-watt lamps.

The multiplying factors for the various filters with different lights, when the Wratten M plates are used, are given on a card with eyelet for hanging; and on the back of the card, the filters to give maximum contrast with different stains are indicated. Other subjects dealt with in these "Notes" are the

relation between the color of the light and resolving power, the effect of N. A. upon exposure, magnification and exposure, and the selection of a filter. Their value to photomicrographers is great.

Photography of Metals

X-ray photography has up to the present been essentially a medical science, with which pure photographic technique has often been far too little associated. A new branch of work has now been developed which links the x-rays with a branch of photography entirely non-medical, and it is likely to assume widespread importance in the near future.

In the early days of radiography negatives were made to diagnose fractures, to locate swallowed coins, or to show malformations of bone, and so on. Later, such subjects as stone in the kidneys were attempted, and as apparatus of greater penetrating power became available photographs were obtained of the heart, diseased lung tissue, and similar difficult subjects. The attention of manufacturers of apparatus became concentrated on the production of rays of greater and greater penetration, and two recent developments have proved so successful in this direction that we can now take a photograph through four inches of hard steel.

One of these is the modern high tension transformer, which takes the place of the induction coil in producing currents of very high voltage for exciting the X-ray tube. The other is the Coolidge tube, with which heavy currents of extreme penetration can be produced with a degree of uniformity hitherto impossible. The principles of the Coolidge tube are now familiar, and need not be enlarged upon here. The transformers used are of a type capable of giving a secondary voltage of between one hundred thousand and two hundred and fifty thousand volts, the penetrating power of the rays being proportional to the voltage applied to the tube terminals. Such transformers admit of exposures of the chest or heart being made with a single impulse—*i. e.*, in a small fraction of a second.

It may not at first sight be easy to form an opinion as to the value of this penetration. A few simple examples may serve to show it. A great deal of costly work may, for instance, be done on a casting for some machine part, only to find when finished that owing to an internal flaw or "pocket" the part snaps or breaks when subjected to working strain. Such a flaw could be detected before the part was worked up by means of a radiograph which would show the internal structure of the metal. Another instance is in the making of alloys, more particularly in the experimental work. In a number of recent experiments in which various substances were added to the alloyed metals to prevent the formation of small air bubbles, X-ray photographs of the samples revealed flaws as small as one sixty-fourth of an inch diameter. A photograph of a shrapnel shell shows how the internal structure of ammunition can be determined. Very numerous examples could be quoted, and no doubt now remains that radio-metallography is destined to prove of great value in various branches of industrial and engineering work.

Installations have been put up by many big engineering firms, such as by the Gnome aeroplane engine manufacturers, the Schneider and Creusot engineering works, and so on.

Needless to say, the apparatus must be specially selected and used with considerable skill and experience. Ordinary X-ray apparatus is unsuitable, though an induction coil giving a sixteen or twenty inch spark with a Coolidge tube will give results up to a point. Special high tension transformers have been designed for the purpose by Watsons, and these, in conjunction with a specially selected tube, admit of exposures of two to three minutes, penetrating two or three inches of hard steel.

An installation equipped for radio-metallography has been designed by M. H. Pilon, of Paris, with whom the writer has had the privilege of co-operating. The greatest possible precautions have to be taken against injuries from the rays, as it is fairly obvious that it is not an altogether easy matter to arrest them. We have found that five millimeters of lead, placed a meter distant from the tube, is tolerably safe, but most installations are so arranged that the operator controls the apparatus from a separate room or cabin, the dividing wall or partition being lined with heavy lead sheet, and observation of the tube made through a thick lead glass window, provided with a lead shutter that can be drawn immediately the tube is seen to be functioning properly.

The object to be photographed is provided

with a lead diaphragm, and stood in its diaphragm upon the plate, the latter enclosed in a plate-holder with a special type of intensifier screen. The object is separated with felt from the plate to avoid secondary radiation. With a voltage of about one hundred and twenty thousand to one hundred and fifty thousand and a current of two to four milliamperes, the exposure is made and the plate developed, preferably without bromide, in a rather concentrated solution.

A hole one sixty-fourth inch diameter and one sixty-fourth inch deep only, drilled in the upper surface of a block of steel two inches in thickness, will show distinctly in a good radiograph. This gives some idea of the powers of the rays to disclose minute flaws or faults.

It is a matter for conjecture whether we have yet found the best type of photographic plate for this work. The absorption of the rays depends upon the molecular weight of the substance, and with these rays of extreme penetration some salt heavier than silver bromide might seem advisable. Yet the ionising properties of the rays may cause an unstable salt of comparatively low molecular weight to be more sensitive than a heavier, more stable salt. Certainly up to the present no compound has been found more sensitive to the rays than silver bromide, and the special attention that has been paid during the last three or four years to X-ray plate emulsions has led to five or six times the rapidity of the earlier X-ray plates. This, in conjunction with the great reduction in exposure effected by the use of the intensifier screen, reduces exposure to very practical dimensions, though it may be observed that with the hard rays used in this work the intensifier screen does not reduce exposure in anything like the proportion it does in ordinary radiography.—*T. Thorne Baker in British Journal of Photography.*

The Gum Bichromate Process

H. S. Starnes, in a paper read by him some time ago before the Royal Photographic Society, gave an account of his experiments with a new colloid. Mr. Starnes, it will be seen, employs, instead of gum arabic, gum senegal and prepares this latter gum upon the paper in an acid condition. In this respect the process bears some resemblance to that of Mr. Nelson K. Cherrill published some years ago in which arabinic acid of gum arabic was previously separated by treatment of the gum with acid. He considered that the bichromate printing process was an ideal one, for the following reasons: There is an almost unlimited range of colors; if suitable pigments are used there is no doubt about their permanence; there are no such things as double tones; and, there can be the same surface of paper as in an engraving. On the other hand, the gum-bichromate process will not give the same fineness of grain that a silver print does, but except for small portraits the grain will probably be fine enough.

In all types of bichromate printing the principal difficulty is in removing only the soluble parts not acted upon by light. In Sir Joseph Swan's original carbon process the film of gelatine and pigment was transferred to a temporary support and the soluble matter was washed away from the back quite satisfactorily, but it required double transfer and warm water. Then came the Artigue process, which did away with the double transfer, but had to be developed with wet sawdust, and frequently the lighter detail would not stand the friction, and was washed away.

Shortly after the advent of the Artigue process the lecturer worked out a process which Sir Joseph Swan told him was the first real advance in bichromate printing since the original patent. The exposed print was soaked in water for a minute or two and laid face upward on a piece of glass, a piece of dry blotting paper was laid over it, and a soft clothes brush was brushed over the back. The soluble part of the film was taken up by the blotting paper, and the insoluble portions forming the image, especially the lighter tints, were pressed down into closer contact with the paper support. Sir William Abney had suggested to him that possibly that method of development might give a suitable grain for process work. The lecturer had no experience of process work, but was pleased to pass on the suggestion to any one who could make use of it. Although the blotting paper preserved the light detail, still the lecturer had the same trouble as those who tried to revive Pouncey's method of printing very deeply and removing the soluble portions with a wet brush, there was no dependence on the condition and solubility of the gum arabic.

When the bichromate printer was an artist he could remove what he liked and leave what he pleased, but the ordinary worker lacking that ability was likely to give the process up in despair. He felt, however, that there was something in the process if he could get a more suitable colloid than gum arabic. He had gradually worked his formula down to the point that to get the best results the paper must be coated so thinly that one minim of the combined mixture of water, gum, pigment, and bichromate must cover four square inches of surface. The brush, the sawdust, and the nozzle of the garden hose were all too brutal in removing the pigment, and blotting paper was too expensive. After experiments, he came to the conclusion that a straight tube about three inches in length, with a bore about the same as in a tobacco pipe, and fitted to the domestic water tap, answered well, as the force of the abrasion could be controlled by varying the supply of water. When he wished to concentrate the action of the water upon small areas he used smaller nozzles, which fitted over the first one. There was then pleasure and interest in working on every square inch of the picture.

In searching for a suitable paper he discarded most of those used by the bichromate printers for one reason or another. Cartridge paper and the cheaper drawing papers allowed the coating to sink in unequally. Whatman's paper, in addition to being expensive, allowed the pigment to sink in to some extent, which, although just what the water-color painter wanted to prevent washing up, was not the property wanted when using the bichromated solution. Some prewar note papers were better, and he found a paper used in collotype printing which was at first excellent, but later samples were of inferior quality. Some of the pigments he had tried contained a proportion of dye, which stained the paper. He used a carbon black, modified with blues, browns, or reds, as required. He found, further, that refined sodium bichromate worked better than the other bichromates.

Nine-tenths of the trouble in bichromate printing arose from the varying characteristics and conditions of the colloids used. The conditions in which gum arabic is collected and stored make it hopeless for the purpose. He found that he might get passable results with it from one negative, yet could do nothing at all when working from another, even though the paper in use was cut from the same coated sheet. The problem had bothered him for years.

He had to make a rather startling statement, which was that under certain conditions the action of light makes a bichromated colloid soluble instead of insoluble. This would explain why the readings of the actinometer were not always reliable, and why one type of negative would give better results than another. The action seemed to be as follows: When the bichromate is added to the colloid it renders the latter more or less insoluble at once. On exposure to light it slowly becomes quite soluble, and after it has reached that stage it begins to get insoluble as under normal conditions. Different samples of gum work differently with regard to the length of time for those two actions to take place. Freshly-made solutions are more prone to act so than solutions that have been kept for some time.

At first he thought that different samples differed as slow and rapid plates do; then he found that there must be two actions going on simultaneously, because the parts of the print under the densest parts of the negative were darker than under the half-tones, while under the lightest or clear glass parts of the negative the prints seemed to print normally, but not with the density that the amount of pigment ought to have given; so evidently some of the gum was not holding the pigment on to the paper. One day he got a print that had a black sky. The trees in the distance looked as though they were covered with snow, and the shadows, which ought to have been the darkest parts of the print, were simply half-tones. That print gave him a clue to the mystery. He showed a print which at the first stage of exposure was a negative from a negative; another showed the two actions going on simultaneously during the same exposure to light, and another which had first gradually been rendered soluble until, by the time it was soluble under the densest part of the negative, the other parts had again become insoluble in their proper sequence, and it was becoming a practically normal print. He was inclined to think that the first stage was purely a physical one, that the bichromate had bound up the colloid too tightly, and that the first

thing the light had to do was to unfasten the straps, if he might use that phrase.

He had searched through many books on bichromate printing to see if a double light action of this kind had been observed, but no one seemed to have noted the phenomenon. The matter was one of considerable importance, as it accounted for a very common fault in prints. It was often found that bichromate prints break down in the rendering of the lightest tints, because under the densest part of the negative the film, instead of being made insoluble for the lightest tints of the print, would be undergoing just the reverse action, and would be made even more soluble, and would wash away more easily, so that it appeared as though the print had been under-exposed. The lecturer had made many experiments in the hope of finding some method of keeping the film of bichromated pigment soluble, so that the light action should be restricted to its legitimate function of insolubilizing it according to the gradation of the negative. It was not until he had worked out the following formula that he began to see daylight:

A: Sodium bichromate .....1 ounce
Water .....2 ounces
B: Alum, saturated solution...4 ounces
Hydrochloric acid .....2 drams

Take one part of A to three parts of B. If with a certain sample of gum this makes the film too soluble, then reduce the amount of B.

Having found gum arabic to be unsuitable, he had tried a number of other colloids, and finally hit upon gum senegal. As an adhesive it was probably not satisfactory, but for printing purposes it worked much better than gum arabic, being softer, less brittle, and more under control.

To make the gum solution a quantity of it is suspended in a bag or wire cage in one pint of water, and as it dissolves more is added until one fluid ounce weighs nine drams. To measure the pigment a salt spoon is used which will hold just twenty minims of water, and four spoonfuls of the pigment, strike measure, are taken; the precise quantity may vary according to the covering power of the color, and is ground up with one dram of methylated spirit. This is added to one and one-half drams of water, mixed thoroughly, and placed in a test-tube to settle for a few minutes. One and one-half drams of the gum solution is taken, and to it is added about three-fourths of the pigment solution, care being taken not to shake up the coarse sediment at the bottom of the test-tube, and the whole is mixed well together. The pigment that had settled at the bottom of the test-tube should be re-ground and added to the mixture. To that is added one dram of the sensitizing solution, consisting of fifteen minims of solution A and forty-five minims of solution B. In winter, solution A may be increased to twenty minims. The quantities given will coat about twelve pieces of 8 x 10 paper.

To coat the paper it should be fastened by one corner to a sheet of glass or zinc, supported if necessary on a wooden board, which in turn rests upon a penny laid on the table, so that the device may be revolved easily in any direction. A spoonful, twenty minims, of the mixture is poured along the length of the paper from left to right at about one-half an inch from the edge. The color should be spread evenly over the paper with a two-inch varnish brush with light strokes, turning the turn-table as required, but always keeping the brush flatwise on the paper. If the brush is turned edgewise streaks will appear. With a little practice it will be found quite easy to coat four square inches of paper with one minim of the mixture.

The coated paper should be placed about two feet from a fire or gas stove, and by the time the second piece of paper is coated the first will be dry. After use, the brush should be cleansed with water and a nail-brush and dried thoroughly before it is again used.

The exposure is about one-eighth of that required by printing-out paper, and is gauged by an actinometer.

For development the print is soaked in water for about a minute and then flooded with solution B, acid alum, one dram; water two ounces. If the exposure has been correct the color in the high lights will be seen to float away in a few seconds. The print is then put on a glass easel in the sink and development completed with the aid of the rubber tube and nozzle device previously described. More control over the print is obtained by giving a longer exposure and by using the acid alum solution in a stronger condition.—*British Journal of Photography.*

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

One Minute Development

Another thing I have been looking up and that is an alternate bath, one minute developer. It came about this way: A recent visitor claimed that he had done some work for a large city daily and was surprised to find that as the exposures were turned in the plates were handed over to a boy who developed them in just one minute, his only knowledge of the process being that he was to insert the plates in a rack, immerse them in one solution for thirty seconds and then remove and insert in a second solution for a like period of time, fixing and washing much as in the usual way, except that the plates were not removed from the rack until put up to dry. The racks, by the way, were returned empty to the washing tank where they remained ready for the next batch of plates to be developed. The composition of the developer my visitor was unable to ascertain. Going over old indexes to photographic journals I find the following formula recommended by Paul Joanovich and commented upon by E. J. Wall, the procedure being as described above. The first solution is made up as follows:

Sulphite of soda	960 grains
Metol	48 grains
Hydroquinone	48 grains
Water	20 ounces

The second solution is simply nine hundred and sixty grains of potassium carbonate in twenty ounces of water. It is not claimed that the negatives will all be of the same density, but that they will be of good prining quality if exposure has been anywhere near correct. It is also pointed out that an increase of time in the first solution has no effect upon the quality of the negatives, but longer immersion in the second results in a difference in quality that can be taken advantage of if desired. One writer on the subject advises that if pyro be used it would likely be found that as much as twenty grains to the ounce of solution might be required for the first bath. Any of our readers inclined to try out this method of working can be assured that it has much to recommend it. The idea of limiting the danger of blocking up the highlights in a negative by limiting the amount of reducing agent the film is allowed to absorb, is one that has been used to advantage, and that is what this process does. Furthermore, some of the best 16x20 negatives of difficult landscape subjects that we have ever seen, were produced by alternate immersion in the components of an ordinary two-solution developer, the worker taking that method as a measure of control to assure economy in the matter of the rather expensive large plates. I would be pleased to have a report on the results of any trial made with this method of working. If satisfactory it would seem to be the ideal one under certain conditions, and in the matter of economy of developer, it should rank very high. The first solution could be used over and over, and the last would require hardly more than an occasional renewal, inexpensive as it is.

Trimming Marks On the Negative

Very few negatives give their best print form without considerable trimming, and too often the procedure is to print full size and then clip away from this side and that until it is judged that the remainder is about the best that one can expect. This takes time and in the method of procedure does not assure the best possible results. And when another print is required at a later date, the whole process has to be repeated with perhaps a different determination of what is best. A much better plan is to use two cardboard triangles on the first proof or print and determine, practically once and for all, just what part of the material gives the best picture. This done, one can easily draw the four enclosing lines, preferably with some easily removable opaque color, and thus be assured of trimming all prints alike and with-

out any loss of time determining just what to cut away. If the ink used is a white one and opaque, it will produce a white line as a trimming guide and also indicate the proper placing of the paper in contact with the desired portion of the negative, when paper is used of a smaller size than for a full-sized print. The reason for using a removable paint or ink is obvious; one might change his mind as to just what to include in the print, one might wish to produce a print of a somewhat different proportion, or, in order to use some particular printing method, slight intensification or reduction might be decided upon and either would be best done with the negative free from any painted lines or other repellants of the solutions used. It might be added that such trimming marks on the negative are particularly convenient when enlargements are being made, the time consumed in getting the best composition within the boundaries of the sheet of paper used being reduced to the minimum.

Washing Negatives

We have always argued that insufficient fixing was the cause of more trouble than insufficient washing, contrary to the popular idea which is expressed in a general assumption that any later spotting or staining of the negative is always due to a lack of sufficient washing. A visitor came in the other day with strong evidence in support of our contention. With him he carried some fifty 4x5 negatives that he had made on a camping trip some twenty years ago, all of them as clear and free from stains as they could possibly be, despite the fact that they had been washed, as he supposed, but superficially. Water was scarce at the place where he did his developing and he therefore simply put the plates in a rack, perpendicularly, and suspended them in a bucket of water, keeping them an inch or two above the bottom. This soaking amounted to about two hours for each lot, the contents of the rack, which last he had carried along with the expectation of using it in some flowing stream. It was intended to give these negatives a second washing upon his return home, but the matter was delayed. Later, at home, just to satisfy himself as to the need of re-washing, he subjected a new negative to the same treatment, and on making a test for hypo he found that it had all been removed, at least within the scope of the ordinary determination always found satisfactory. We really do not urge this method of washing negatives; but, as an alternative to subjecting the poor, soft emulsion to a continued strong flow of water from which it collects a nice slimey coating of dirt, to say nothing of the waste of water, the plan has its advantages.

Passe-Partout Binding

The other day I watched a chap use this material, and he did it so quickly and with so little fuss and trouble that I believe his plan is well worth trying. Just how much of the ease he enjoyed in the work was due to the method and how much to an acquired expertness thereat, I could not quite make out. He first cut the number of strips of the exact required lengths, in this particular case he cut twenty of them eight inches long and a like number ten inches long, having ten 8x10 pictures with like glasses and backs to bind. Then, each piece was carefully creased down the center and laid aside until all were done and awaiting the next operation, this last consisting of opening the individual strip into a V-shaped trough, running a small brush, charged with water, along the portion to be attached to the glass, and then placing the moistened edge in position on the glass, as the latter rested on something that allowed its edges to protrude over. The four creased strips applied to the four sides of the glass, the whole is turned over, the picture dropped in, face down, with the backing board on top. All that remains to be done is to moisten the dry edges of the strips as they stand upward, press them down into contact, and the job is neatly and quickly done.

Removing Pyro Stains From Hands

First, rub a strong solution of potassium permanganate into the hands, giving particular care to the stained parts of the fingers, until thoroughly blackened. Then rinse in water for a minute or two and immerse in a warm, saturated solution of oxalic acid. One should, however, remember that the acid solution will prove rather irritating to any cuts or scratches and use this remedy only when the stained hands are in otherwise good condition, a situation easily maintained by the use of a little olive oil or vaseline well rubbed in if the skin is inclined to become dry and cracked.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

The Third Post Card Album

The Third Circulating Album of the Post Card Division started over its route list the latter part of May, beginning with the California contributors. About seventy-five cards, the work of twelve members, make up the collection, which is a particularly interesting one. A wide range of subjects are shown, several of the cards are handsomely colored, and not a few are of a quality that would give enlargements, about 11x14, a good chance in some of the exhibitions. I. P. A. members interested in post cards should get in touch with the Post Card Album Director, John Bieseman, Hemlock, Ohio, to the end that a few of their cards may go into the next album and the album routed to them. Mr. Bieseman advises that, where possible to do so without deflecting this Third Album from its present route, he can arrange to have a new contributor's, or interested prospective contributor's name inserted in the route list, thus enabling him to see one of the albums without waiting for the particular one to which he may contribute.

The Lantern Slide Division

Mr. Farrow, Eastern Director, reports that the first set of slides, after traveling through the New England States, Pennsylvania, Maryland, Ohio, Illinois and other Western ones, has reached Denver, and is well on its way to the remainder of the route list. The second set, the one embracing the Western slides, is now going over the same route, while the third collection is nearly ready to be started out. During the next few weeks, somewhat of an "off-season" with slide workers, Mr. Farrow will get together the slides for next season, the fourth and following sets. We have heard from several camera clubs, schools, churches and the like, where the first set has been shown, and invariably with the highest praise for the good quality and interest of the slides, praise that should be most gratifying to those contributing to these sets. We would urge all members interested in lantern slide work to get in communication either with Mr. Farrow or Mr. Davies and send in some of their best work for possible acceptance in one of the outgoing sets.

Officers of the I. P. A.

F. B. Hinman, President, Evergreen, Jefferson County, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Claus Spreckels Building, San Francisco.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

John Bieseman, Director Post Card Division, Hemlock, Ohio.

James B. Warner, Director Stereoscopic Division, 413-415 Claus Spreckels Building, San Francisco.

A. E. Davies, Director Western Lantern Slide Division, 1327 Grove St, Berkeley, Cal.

Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4624—Ralph L. Simonsen, 1010 41st St., Brooklyn, N. Y.
Class 3.

4625—Carl Mattson, Stephen, Minn.
Class 2.

4626—Mrs. C. B. Weeks, Thoreau, N. M.
2¼x4¼ and post cards, developing papers, of Navajo types and New Mexico scenery; for anything of general interest. Class 1.

4627—R. W. French, Camp Sherman Exchange, Camp Sherman, Chillicothe, Ohio.
4x5, various papers, of views of Southern Ohio, including works of mound builders; for general views and scenery. Class 1.

4628—B. F. Willard, 339 Claymont St., Wilmington, Del.
1⅝x2½, 3¼x4¼, 5x7 and enlargements, various papers, of scenes of general interest, interiors, landscapes, few portraits, etc.; for the same and Velvet Green and p. o. p. prints, also marine subjects. Class 1.

4629—James Bates, Main St., Keady, County Armagh, Ireland.
3¼x4¼, 4x5, 4¾x6½ and enlargements, various papers, of portraits, landscapes, Irish views and scenes, etc.; for something similar to above. I would like California scenery. Class 1.

4630—Ray C. Morgan, P. O. Box 401, Pendleton, Or.
Class 2.

4631—Elbert M. Morey, 239 Iroquois Ave., Detroit, Mich.
3¼x4¼, 3¼x5½, various papers of general views different places in Unted States, a few places in Canada and Mexico. Good work

only, want same in exchange. For historical views, scenes in different cities, figure studies, bathing girls, etc. Class 1.

RENEWALS

1808—Robt. Ritchie, Box 72, Sioux Lookout, Ont., Canada.
Class 2.

2533X—Gilmer Winston, care Union & Planters Bank & Trust Co., Memphis, Tenn.
Standard size stereos, of general landscapes; for the same. Good work only. Class 1.

2990—James L. Vaughan, R. D. No. 1, Belvidere, N. Y.
Standard size stereographs, unmounted; for the same. Class 1.

4389—Otto C. Perry, 1953 South Galapago, Denver, Colo.
3½x3½, 3¼x5½, and post cards, or as requested, of locomotives, speed pictures and a few scenes; for the same. Class 1.

3027—C. F. Small, 361 Hassalo St., Portland, Or.
Class 2.

3908—S. J. Anderson, Box 32, Bellaire, Ohio.
3¼x5½ and 4x5, developing papers, of lake views, Niagara Falls, Cuban views, historical views, seashore scenes, bathing girls, and others of interest; for the same. Do good work and want the same, no post cards, only prints. Class 1.

4499—F. Salazar, Rio Hondo, Texas.
Contact prints and enlargements up to 5x7, various papers, of landscapes, birds, children, farm subjects, etc.; for the same. Class 1. Unable to make any exchanges during the months of April, May, June, July, August, and September, account of hot weather.

4504—Elden F. Horn, 1321 Newport Ave., Chicago, Ill.
3¼x4¼, various papers, of city and surrounding country, some Colorado mountain scenes, etc.; for similar photographs, no portraits or figure studies acceptable. Have a large number of astronomical subjects by our largest observatories for those who are interested. Class 1.

4610—Arthur Kettner, P. O. Box 257, Morgan, Minn.
1⅝x2½, 2¼x3¼, 2½x4¼, also post cards, various papers, of falls, farm scenes, domestic animals, etc.; for anything good of general interest. Class 1.

CHANGES OF ADDRESS

4163—C. A. Heald, 127 Dexter St., Covina, Cal.
(Was 330 E. San Bernardino Rd.)

4371—Homer A. Sanford, Box 143, Juneau, Alaska.
(Was Box 1133.)

4391—Geared L. Cole, Carroll, Iowa.
(Was Dedham, Iowa.)

4414—Oscar C. Kuehn, 3430 Caroline St., St. Louis, Mo.
(Was 3405 Caroline St.)

4457—Glenn L. Gebhardt, Canon City, Colo.
(Was Carbondale, Colo.)

4586—Ernest L. Bigler, Box 470, Macon, Ga.
(Was Route 2.)

4588—H. K. Witherspoon, Box 17, Raleigh, N. C.
(Was Bridgewater, N. C.)

CLUB NEWS AND NOTES

Wanamaker Exhibition

You are invited to send your pictures to the Fourteenth Annual Exhibition of Photographs, to be held March first, 1920, in Philadelphia. Entries close Saturday, February seventh, 1920.

The judges will decide the merit of each picture as they would in an exhibition of paintings or sculptures, and will have authority to hang only those pictures that are worthy, omitting all others. Eighteen prizes will be awarded, and as many "special mentions" as may please the judges. There will be a first prize of one hundred dollars; a second of fifty dollars; a third of twenty-five dollars; five of ten dollars each, and ten of five dollars each. In case of several pictures being of nearly equal merit, the judges may combine the prizes and divide them in different proportions, according to their judgment of the relative merits of the pictures.

Pictures must be mounted on white, light gray, cream, or light brown cards, none smaller than 8x10 inches, and none larger than 18x22 inches. We are obliged to insist on this rule, to preserve the appearance of the wall. Framed pictures will not be accepted.

Each picture should have plainly written on its back, its title, name and address of exhibitor, material used, and other statements of interest mentioned on the label which the exhibition bureau supplies. In addition to the label, the exhibitor must make a list of his pictures on a card suitable for a card index catalogue. These cards will be mailed on application.

Photographs intended for exhibition should be carefully wrapped and plainly addressed, and marked with the name and address of the exhibitor; and delivered to the exhibition bureau on or before Saturday, February seventh, 1920.

Express charges, if any, must be paid by the exhibitor. In every instance, entrants living outside the line of our wagon delivery should send postage for return of prints, otherwise prints will be held for instructions.

Exhibitors desiring to sell their pictures should mark the prices on the backs. Ten per cent will be charged on any picture sold.

For further information, apply to Photographic Exhibition Bureau, Main Floor, Chestnut and Juniper Streets, John Wanamaker, Philadelphia, Pennsylvania.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Early in June, J. H. Thullen of Merced took an aeroplane trip with one of the lieutenants from Mather Field, making photographs of Yosemite Valley. Joseph is a photographer who is equal to anything, anywhere and at any time.

H. R. Brinsmead of Reno has opened a twenty-five thousand dollar garage. His studio is being conducted by Mrs. Pafrath and Mrs. Shand, formerly with Hartsook in San Francisco.

Wynn Goodrich of Reno is a bear for artichokes. He does, on occasions, indulge in other eatables, but mainly for appearance's sake.

Claude E. Armstrong of Ogden, has enlarged his store and it now looks very fine.

L. F. Griffith of Salt Lake is looking fine, his fourteen-month-old operator is a fine looking boy, and Mrs. Griffith is in the same class. The last time we were there L. F. showed us more of Salt Lake than we had seen in our twenty-two years of visiting that city.

A. A. Bailey, Jr., of Portland, is doing a fine business in his kodak store at Lipman-Wolfe's, where Miss Harris is his able assistant.

V. R. Trine, with Pike & O'Neal, still has his pipe. They say his wife gave him a new one on his birthday and all his friends are wishing he would use it.

Louis Magnus, who has been overseas for the past eighteen months, is back in San Francisco and in his old position with Hirsch & Kaye.

A Progressive Local Firm

G. E. Biddell & Company, the "Camera Doctors", of 53 Fourth Street, this city, are to be congratulated on the steady increase of business the firm enjoys. The store is conveniently located, the service is of the best, and it seems to be the policy of the house to do everything possible for the satisfaction of its customers. An Eastman agency has recently been secured, so that patrons may be assured of getting any and all of the standard goods, as well as a wide selection of used cameras, lenses, and the like. The repair department, as heretofore, will maintain the same high degree of efficiency that Mr. Biddell's personal attention and a perfectly equipped shop has made possible. The firm has advertised in our pages for a number of years and can be recommended to our readers without hesitation.

A Complete Motion Picture Catalogue

The Bass Camera Company of 109 North Dearborn Street, Chicago, announces that it has gotten out a complete motion picture apparatus catalogue that not only contains a list of all kinds of apparatus, but many valuable hints on exposure and the actual taking of the picture, hints not found in available text-books on the subject. The firm will send copies of this catalogue to such of our readers as are interested therein and we would advise that application be made promptly before the edition is exhausted.

Mr. Wilmot With The Haloid Co.

News reached us recently that the productive capacity of The Haloid Company of Rochester, New York, had been doubled, making it the largest exclusive manufacturer of photographic paper in this country, despite the fact that it is one of the youngest of the photographic industrial plants. The firm confines its activities to the production of fine photographic papers, specializing on fine portrait grades, and the rapidity with which it has forged to the front in the last three years is indicative of the excellence of its product.

News now comes that Frank Wilmot, for over twenty-three years the president and general manager of the Defender Photo Supply Company, of which he was one of the founders, has associated himself with The Haloid Company in the capacity of vice-

president. Mr. Wilmot's aggressive policy, which did so much to place the Defender Company in the position which it now enjoys, from its modest start in the top floor of what is now the C. P. Ford Company's building, over twenty-three years ago, should make for the still more rapid growth of the younger concern. Mr. Wilmot served his apprenticeship with the Eastman Kodak Company in the early days when film manufacturing was in its infancy and he is one of the best known, most liked men in photographic circles today. A wide host of friends wish him all success in his new affiliation with this young and progressive concern.

Optical Glass In This Country

A well illustrated article entitled: "America's Optical Emancipation; How a Dreamer of Sixty-six Years' Standing Has Seen His Dream Realized", appeared in the *Scientific American* of May third; a most interesting account of difficulties overcome, success achieved, and the correlated overthrow of a particularly tenacious European monopoly. The article in question is much too long to reprint entire, and it is all so interesting and informative that to make extracts only, and yet convey even a part of the message it has, is impossible. Beginning with the 1853 start in the optical business by John J. Bausch in Rochester, the enthusiasm of his son William, their untiring efforts, and the final production of an optical glass suitable for the highest grade of anastigmat lenses in the winter of 1916-17, it is told how, with the co-operation of the Geophysical Laboratory, this country was rendered independent of the foreign optical glass product. Most interesting is the non-technical description of glass manufacture, as practiced in this particular branch of the work, and we can hardly do better than close with the last sentence of the article: "And now as the father approaches his ninetieth birthday, he beholds, what he hardly dared dream of when he started his doubtful venture sixty-six years ago, America optically freed from the last trace of European dominance."

The Simplex Dryers Selling Well

The Howland & Dewey Company of Los Angeles reports good sales of the Simplex Auto Print Dryer, of which they are exclusive Coast agents, and the manufacturers, in sending their new advertisement for the current issue, advise the same gratifying situation throughout the country. We ourselves know of one of these dryers being placed in a commercial plant in which three different "home-made" dryers had been built and operated, only to find that the construction of a satisfactory print dryer is not the simple matter that it would seem. The few reliable print dryers now on the market are, as it were, an evolution, the result of numerous improvements over the original designs, in most cases combined with a degree of structural perfection not easily achieved outside of a specialized manufacturing plant. Look up the new Simplex advertisement and figure out how much a dependable dryer will save you in time and labor during the year.

Illinois College of Photography

The warm spring weather is turning the thoughts of many to tennis and other sports. Just recently the College Tennis Club elected officers, and plans are under way for a good season of this sport.

Mrs. R. W. Graves of Chadron, Nebraska, has written us that Mr. Graves passed away suddenly on March fourteenth. We know that all who were acquainted with this couple will deeply regret his loss.

Just as these notes are being written we are advised that a club, composed of young men who have been in the military or naval service, either of this country or of its allies, is being formed at the College. We will give more details of the plan at a later date.

It has been announced that Mr. and Mrs. Verne Sabin will be at home in Union City, Tennessee, after March twenty-fifth. For those who do not know the latter by the name just given, we would call to mind the romance that developed at the I. C. P., in 1911, between Mr. Sabin and Miss Nonie Rhoads. They have our best wishes for a happy married life.

Turn the phonograph on your victim when you want to take his picture. This idea has been worked out by a Miss Morton of Oregon, and should prove a great help in home portraiture. Quoting Miss Morton: "If you want your subject to have a happy alert expression, play 'Dixie' or 'Turkey in the Straw'; for a wistful expression, try 'Hearts and Flowers' or 'The Last Rose of Summer', and so on, as the phonograph is surely an expression getter."

Summer Course In Photography

The College of the City of New York, St. Nicholas Terrace and One Hundred and Thirty-ninth Street, New York City, announces an elementary and an advanced course in photography, beginning July third and ending eight weeks later. Both will consist of laboratory, field and class work. Thursday evenings and Saurday afternoons being devoted thereto. The fee will be five dollars and registration should be made at Room 226, Main Building. These courses will be by Dr. Samuel A. Schwarz, A. M., C. E., well known to our readers through his several valuable contributions to our pages during the past few years. The first or elementary course has been prepared especially for the amateur and is thoroughly practical. It will enable him to produce better pictures and attain more artistic results with a great deal less effort and financial outlay. The second or advanced course, intended for those who have taken the first course or its equivalent, gives a practical training in the more advanced phases of photography. Portraiture, commercial and scientific photography, including the general principles of radiography, microphotography, will have consideration, as well as composition and pictorial requirements. Such of our readers as can do so should avail themselves of this opportunity to acquire valuable photographic knowledge at a minimum cost of time and money. Dr. Schwarz will be found a most inspiring and instructive teacher, and his capabilities, both as a teacher and as a photographer, are such that we can only recommend these courses most strongly.

Cooper Hewitt Management

The General Electric Company, by the acquisition of all the common stock of the Cooper Hewitt Electric Company, has secured control of the latter company. The Cooper Hewitt Electric Company, for the past sixteen years, has built up a very extensive business in industrial and photographic lighting amongst all the large industrial manufacturers, motion picture studios, photographers and photographic laboratories.

The company will be operated under the regulation and management of the General Electric Company and the following nine directors assumed office on June third: C. E. Patterson, comptroller, General Electric Company, New York City; C. W. Stone and M. R. Birge, General Electric Company, Schenectady, New York; G. C. Osborne and W. R. Burrows, Edison Lamp Works of the General Electric Company, Harrison, New Jersey; L. P. Sawyer and W. H. Roberts, National Lamp Works of the General Electric Company, Cleveland, Ohio; Grosvenor Calkins, attorney, Boston, Massachusetts, and W. A. D. Evans, Cooper Hewitt Electric Company, Hoboken, New Jersey.

Mr. Evans, who has been connected with the Cooper Hewitt Electric Company since its inception, will be in actual charge of the company as president and treasurer. N. R. Birge will be vice-president; C. P. Hamilton, assistant treasurer, and E. E. Davies, secretary and auditor. The present policy of the company in its field of industrial and photographic lighting will be continued.

Reading Advertisements Pays

William Wolff, the popular traveling man for Hirsch & Kaye of this city, vouches for the following: Tom Cronise, the busy proprietor of a Salem, Oregon, studio, picked up his copy of CAMERA CRAFT to read on the way home. The car was slow in getting there; and, as he had already read several of the articles, he finally came to the little "Want" advertisements. Here he found an announcement of a certain lens offered in exchange for a cornet or xylophone, the lens in question being the same size and make as one that had been stolen from him about two years before. Returning to his studio the next morning he hunted up a picture that he had taken of the lens, one that showed the number plainly on the front of the mount, and sent it to the chief of police of the city in which the advertiser lived, together with particulars concerning his loss. The advertiser had secured the lens in exchange for a kodak, but Mr. Cronise recovered his lost property and the thief will no doubt be located. Mr. Cronise also discovered that we wanted certain back numbers and sent in such as he had, with the result that his subscription was extended seventeen months. There is at least one photographer who believes in reading all the advertisements in our magazine. If doing so once results in the return of a valuable lens, given up for lost, and the extension of his subscription for over a year, reading the advertisements is, in his estimation, a paying business.

CAMERA WANTS

Advertisements of the above nature shown below will be inserted under this heading at the rate of fifty cents each insertion, for twenty-five words or less; each additional word, two cents extra, cash with order. Those of positions wanted inserted once free. No business advertisements accepted.

WANTED Pictorial negatives of sea gulls in motion, marine views and landscapes. Send sample print and price of negative. Address Van de Grift's Art Studio, Fort Wayne, Ind.

FOR SALE Last 10 years of "Camera Craft", in perfect condition, for $5.00 the lot; buyer to pay express from Coalinga, California. Frank Foster, Oilfields, Cal.

RETOUCHING And coloring for particular photographers. Specialist on copies. Special attention given to out of town work. Prompt service, right prices. Emerson P. Beers, 539 41st Ave., San Francisco, Cal.

FOR SALE 4¾-in. Goerz Dagor, series III, in barrel, $27.50. 6⅞-in. Zeiss anastigmat, f-6.3, Compound shutter, $29.75. 5x8 Plastigmat, f-6.8, Automatic shutter, perfect, $32.50. E. C. Ingram, 308 Marion St., Seattle, Wash.

WANTED Home portraiture outfit and portable flash lamp. Prefer 5x7, but would consider larger size. State condition and lowest cash price. H. H. Wonacott, Fort Bragg, Cal.

FOR SALE Premo No. 9, 4x5 and case, Optimo shutter, Wollensak f-6.3 lens, 10 plateholders, filmpack adapter, wood tripod, ray filter, developing tank, Radion enlarging camera; price $50.00. J. P. Edwards, 817 30th St., Sacramento, Cal.

SALE OR EXCHANGE Voigtlander Alpine Stereo Panoram, 10x15 cm., 3 objectives with plateholders, film pack adapter, Ducar filters, carrying case, etc. Want Voigtlander Stereflectoscope, 45x107 mm., with changing magazine, plateholders, etc. C. Clawson, 1026 West 4th Street, Los Angeles, Cal.

FOR SALE One Century view camera No. 2, size 8x10 with 14 film holders, and carrying case; also 9-in. Dagor lens; 1 Century view camera No. 2, size 6½x8½, with 8 plateholders and carrying case, with Rapid Symmetrical lens and Auto shutter; 1B. & L. Zeiss Protar W. A. lens, series V, f-18, for 6½x8½, new; 1 5x7 W. A. lens, same make as above; 1 Ross W. A. lens, 6½x8½. Will exchange part on an Ensign Reflex camera, 3¼x4¼ and f-4.5 lens. Will sell any of the above articles for two-thirds of list price. Address W. L. Jacobs, Yuma, Ariz.

FOR SALE Studio netting better than $3000.00 per year for $1500.00 cash. Facts furnished on request to parties meaning business. No triflers. Agent Elite Photo Studios, Baker, Or.

WANTED No. 8 Cirkut outfit or 6½x8½ Revolving Back Cycle Graphic; perfect condition. A. Lauritzen, 97 Orange St., Springfield, Mass.

FOR SALE 4x5 Century Grand Sr., Ilex f-6.3 lens in Acme shutter, 3 plateholders, film pack adapter, extra wide angle bed, leather carrying case, $40.00. Also 5x7 Pony Premo No. 6, Vinco f-6.8 lens in Regno shutter, 4 plateholders and leather carrying case, $37.50. Both outfits in perfect condition. F. H. Maybury, 146 Carondelet Street, New Orleans, La.

PARTNER WANTED In largest photographic plant on Coast, doing good business, equipped for all branches of photography. You must either be a good photographer or a good hustler; will let the right man in right. Address S. S., care "Camera Craft", San Francisco, Cal.

WANTED One 5x7 View camera with or without lens, also 1 No. 2 Halldorson flash bag. State full particulars. A. B. Rigg, Mulvane, Kansas.

POSITION WANTED By married man, 32 years old, with 14 years of experience in portraiture, commercial, press, movies and aerial photography; also several years experience in photographic supply and warehouse. Am now employed in civil service as photographic general supply warehouse foreman and photographer. Wish a position as photographic supply manager or large studio. Good salary expected, as I can deliver the goods; references in all above branches can be furnished. L. W. Stallbaum, Photo Whr. Foreman, Wilbur Wright Field, Fairfield, Ohio.

BARGAINS Ernemann Heag, 2¼x3¼, Zeiss f-6.3 in Compound 1/300 shutter, adapter and 6 holders, new condition, old list $55.00, sell for $37.50. Scientific anastigmat f-6.3, 12½-in. focus, perfect condition, $45.00. 5x7 Graflex Focal Plane shutter, list $20.00, for $9.00. Reflex, 4x5, f-4.5 Velostigmat, 6 holders and adapter, list $133.00, for $60.00. Premo, 3¼x4¼, 3 holders and adapter, new bellows, list $22.00 for $8.00. Voigtlander Collinear 4¾-in. focus, f-6.8, in Multispeed shutter, like new, list $55.00, for $32.50. 5x7 long focus camera with 10-in. f-6.3 Velostigmat, Thornton Pickard shutter and 6 holders, $65.00. J. A. Seeke, 86 Beekman St., New York City.

FOR SALE Owing to death of husband, will sell at a bargain, 8x10 and 5x7 studio outfits complete. Mrs. W. H. Clinkenbeard, Box 637, Modesto, Cal.

FOR SALE Vitax portrait lens, 16-in. focus, Diaphragm shutter, good as new, $110.00. Also old R. R. Dallmeyer lens, about 18-in. focus, fine 8x10 lens, $45.00. Krauch, 444 South Broadway, Los Angeles, Cal.

WANTED Photographic books and magazines in exchange for figure studies and prize winning landscapes. State what you have. H. Brodine, 724 East 158th St., New York City.

WANTED Second-hand picture-frame moulding miter and clamp with saw complete. Also Naturalist's Graflex camera, with telephoto lens. State prices. L. C. Thorne, Jensen, Utah.

FOR SALE First class condition, prices less than half, Ica plate tank, 3¼x4¼, $2.00. Probus fixing box, 3¼x5½, 75 cents. No. 2 Ingento trimmer, $1.25. No. 2 Kodak trimmer, 50 cents. No. 1 Combination tripod, $1.75. 5x7 direct view finder, $1.00 Swivel top for metal tripod, 50 cents, or $7.00 for the lot. Box 16, care "Camera Craft", San Francisco, Cal.

WANTED Two complete sets of Schriever's Self-Instructing Library of Photography. Bachrach, Inc., 906 N. Charles St., Baltimore, Md.

SALE OR EXCHANGE 11x14 Rodenstock Eurynar (Dopple anastigmat) lens, series I, No. 6, f-6.8, 36 cm. (14-in.) focus, almost new; worth $140.00, sell for $90.00, or exchange for post card size Graflex camera. Address P. O. Box 469, Santa Rita, N. M.

SALE OR EXCHANGE For large Goerz Celor, one genuine 3A H. Dallmeyer lens. Cost $220.00, sell for $110.00. Scott's Studios, Tacoma, Wash.

FOR SALE New 7x17 Banquet camera and film plate holder, $50.00. Goerz Dagor lens 16½-in. focus, good as new, $100.00. 807 Polk St., Port Townsend, Wash.

CAMERA CRAFT

A Photographic Monthly

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FOREIGN AGENTS

Australia	Harringtons, Ltd., Sydney
	Kodak, Australasia, Ltd., Sydney
England	Francis Collas, 3 Wine Office Court, Fleet Street, London, E. C.
New Zealand	Richard Hill, Matlock House, Devonport, Auckland
	Waterworths Limited, 58 Queen St., Auckland
	Waterworths Limited, 286 Lambton Quay, Wellington
Philippine Islands	F. O. Roberts, Manila
Japan	K. Kimbei, Yokohama
China	Squires, Bingham & Co., Shanghai

AUGUST BARGAINS

In High-Grade Lenses, Cameras and Supplies

LENSES

3¼x4¼ **Zeiss Kodak Anastigmat No. 2,** 5-in. focus, f-6.3, in barrel; new. List $23.50..now $17.50

3¼x4¼ **Carl Zeiss, Jena, Protar, VIIA,** f-7, 4½-in. focus; front lens 8¾-in., back lens 7$\frac{3}{16}$ in. fitted in Volute shutter; like new. List $73.50.....now 53.00

3¼x4¼ **Goerz Dagor, Series III, No. 0,** 5-in. focus, f-6.8, in barrel; perfect condition. List $37.50 .....now 24.00

3¼x4¼ **Goerz Dagor, Series III, No. 0,** 5-in. focus, f-6.8, in Wollensak Auto shutter; perfect condition. List $45.00.....now 29.00

3¼x4¼ **Ross New Combinable,** 5½-in. focus, f-5.5; front lens 9½-in. focus, in barrel; new .....now 48.50

3¼x4¼ **Ross Goerz,** 5-in. focus, f-6.8, in Ilex Acme shutter; like new.....now 38.75

3¼x4¼ **Ross Goerz,** 5-in. focus, f-6.8, in Optimo shutter; new.....now 38.75

3¼x4¼ **Ross Homocentric,** 5-in. focus, f-6.3, in Compound shutter; new.....now 36.00

3¼x4¼ **Ross Homocentric,** 5½-in. focus, f-6.3, in Koilos shutter; new.....now 36.50

3¼x4¼ **Ross Homocentric,** 5-in. focus, f-6.3, in Multispeed Jr. shutter; new.....now 37.50

3¼x4¼ **Ross Homocentric,** 5-in. focus, f-6.3, in Koilos shutter; new.....now 32.50

3¼x4¼ **Goerz Syntor,** 5-in. focus, f-6.8 in Automatic shutter; perfect condition. List $43.00 .....now 24.75

3¼x4¼ **Ross Homocentric,** 5-in. focus, f-6.3, in sunken mount; new.....now 23.00

3¼x4¼ **Ross Homocentric,** 5½-in. focus, f-4.5, in barrel; new.....now 35.50

3¼x4¼ **Goerz Dagor, Series III,** f-6.8, in Kodak Automatic shutter; perfect condition. List $47.00 .....now 29.50

3¼x5½ **Goerz Dagor, Series III, No. 1A,** 6½-in. focus, in Compound shutter. List $60.00 .....now 47.50

4x5 **Genuine Carl Zeiss Protar, Series VIIA,** equivalent focus 5¾-in., f-7; single 9 in. and 11½ in., fitted in Volute shutter; perfect condition. List $82.00.....now 45.00

4x5 **Ross Homocentric,** 6-in. focus, f-6.3, in Multispeed Jr. shutter; new.....now 42.50

4x5 **B. & L. Zeiss Tessar, Series IIB,** 6⅛-in. focus, f-6.3; perfect condition. List $35.00, now 26.50

4x5 **Zeiss Wide Angle Anastigmat,** 4½-in. focus, f-16, in barrel.....now 18.00

4x5 **Ross New Combinable,** 6-in. focus, f-5.5, in sunken mount; new.....now 55.00

4x5 **Ross Homocentric,** 6-in. f-6.3, in barrel; new.....now 24.50

4¼x6½ **B. & L. Zeiss Protar, Series IV,** Wide Angle, in Volute shutter; like new. List $41.00 .....now 29.50

4x7 **Bausch & Lomb Zeiss Protar, Series VIIA, No. 8;** front lens 13¾-in. focus, back 11$\frac{3}{16}$-in. focus; comb. eqv. focus 7 in., f-7, in Compound shutter; perfect condition. List $96.50 .....now 72.50

Continued on Next Page

A DAUGHTER OF CONFUCIUS
By JOHN A. HICKEY

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXVI AUGUST, 1919 No. 8

Under Nature's Skylight

By John A. Schreurs

With Illustrations by the Author

The first photographic portrait made in this country, the one by Professor Draper, necessitated several minutes' exposure in the bright sunlight on the roof of a building. Daguerre's first portraits were made out in the bright sunlight with an exposure of six minutes. His first studio was entirely of glass, in order that there might be no diminution of the all-necessary light that the process, as then worked required, in order that the exposures might be made within reasonable limits. The first studio was therefore merely a protection against the weather, allowing the work to be done under shelter; in-doors, as it were, despite the fact that the roof and even the doors were glazed. As the sensitiveness of the materials and the rapidity of the lenses improved, it became possible to make portraits with a smaller volume of light; and, in imitation of the painters' conditions, skylights became the common adjunct of the operating rooms.

Despite the fact that these skylights were so arranged that all portraits were made with the light falling upon the subject from a point at one side and a little to the front, backgrounds and accessories were arranged to represent out-door scenes, room interiors, and the like, situations wherein such lighting could, only by accident, be achieved naturally. In fact, it was no uncommon occurrence to have the subject lighted from an entirely different direction to that shown in the painted scene behind. The forty-five degree angle of light was the proper thing; it was "painters' lighting" and the only kind that would give proper modeling of the face and figure. But gradually the photographers, in an effort to give variety to their work, tried different lighting effects and found them

satisfactory, particularly when used with judgment and some regard to the different requirements of individual subjects. Some workers found that an entirely different lighting often gave a more pleasing result than the stereotyped angle of forty-five degrees; in fact, ordinary room lighting is frequently more kind to a certain type of face, besides being the lighting under which the faces of one's friends are most often observed. Even cross lighting, something that was entirely taboo in the old days, was found to have its place in portrait work where variety and consideration for the best effects were sought in the resultant portraits.

A GARDEN FAIRY

FROM OLDEN TALES

With the advent of the kodak, the hand camera, the knowledge that good portraiture by photography was not entirely a matter of skylight and "painters' lighting," became quite general. The home portraitist, coming into the field at about this time, in response to a general demand, further emphasized the fact. And of course it did not take either the amateur user of the hand camera or the professional maker of portraits in and about the home, a very long time to discover that by a proper selection of location, a near approach to the studio lighting could be secured, when desired, either in-doors or out. And in any case, consistency characterized the finished result to a degree that had not been so often apparent in strictly studio work. Home portraiture, as a field of photographic endeavor, has a bright future before it by reason of the convenient service it renders those who find no joy in visiting a studio nor pleasure in the resultant pictures.

Portraiture out-doors, under nature's skylight is possible, in this country, only during a few months of the year, except in some favored localities. The photographer who can do such work and do it satisfactorily, should avail himself of the opportunity of doing some business along this line. Better homes are being built each year and the home grounds are given correspondingly more attention. What more natural than that the residents of such homes should prefer a bit of their own garden or grounds to the painted representation of unnatural, if not impossible landscapes, as a sitting for their portraits. Everything that is necessary is at hand; portable cameras and tripods suitable for the

A CHARMING LITTLE DANCER

work, lenses of suitable focal length and speed; and, best of all, an endless variety of backgrounds with lighting effects that change from hour to hour throughout the day. The photographer who cannot avail himself of the opportunity the situation presents has only himself to blame for his inability to do "some business" at a time when his customers feel a growing unwillingness to drag themselves to the studio simply because the unnecessary skylight is there located.

The pleasure that the photographer can find in this class of work is no small item. As one accompanies the subject amid his own out-door home surroundings, there is a reciprocal, pleasurable feeling that should inspire him to produce something in the way of a portrait that will be a credit to his skill. And this enthusiasm is contagious; often to the extent that the subject's delight at the simplicity of the procedure will cause him to suggest different poses and combinations covering a wide selection of locations. I must, however, confess an inherent commercialism of spirit that prompts me, while agreeing to the

novelty of each suggestion, to cause some of the exposures to result as blanks through the slide being allowed to remain in position "by mistake," consoling myself with the feeling that this mild form of deception is simultaneously both economic and politic. Were the friends of the subject to see the results of exposures made under unsuitable lights, results that would discredit the photographer, they would not stop to think that the picture was made because the subject so suggested. And to argue the matter with the subject, at the

DANCE OF THE FLOWERS

BUSINESS CARES FORGOTTEN

time, would destroy the spirit of the occasion, robbing it of no small part of its pleasure for both. There is, again, a pleasure to be derived from the test of one's skill that the ever varying conditions demand. There is joy to be found in the getting of a good negative under the different circumstances, as well as in "getting" some of those who would never go to a studio for their portraits.

And as photographers inviting, soliciting if you will, this class of work, we should refuse to make post cards or other cheap forms of pictures. There is a large enough field in the making of only the better grade of work, so why cheapen ourselves by doing cheap work or deny ourselves the time and opportunity of doing profitable work by doing that which does not pay? Brown or sepia toned prints seem to be the favorites for this out-in-the-open summer work; and, made attractive by the use of the best folders, the prices secured should be proportional to the greater time and trouble involved, as compared with studio work.

To succeed in our work under nature's skylight, we must learn a few new things about lighting and forget a few of the old ideas that we have acquired. Instead of trying to conform to the requirements of the studio lighting, let us realize that almost any lighting that is soft and agreeable is suitable to good portraiture. True, direct, flat lighting from either the sun or even from the sky alone, if unscreened in any quarter, is not satisfactory, but the former is avoided by seeking the softer lights and the latter is hardly possible when working about a house or where there are trees to afford the required protection from the sun. And with these soft lightings the exposures must be sufficiently long to assure that soft effect that the eye expects under such conditions.

THE SHADED GARDEN SEAT

And another danger that must be avoided, a menace too often overlooked in this class of work, is the careless pose. The careless pose, the one that gives us objectionable foreshortening of features or form under the skylight, will do the same under out-door conditions. The careless pose, bear in mind, is not necessarily a natural one. The out-door pose may perhaps be less constrained and dignified, just as our out-door seats are less formal than our parlor chairs, but there is no good reason why a graceful pose is not just as natural on a garden seat or in leaning against a tree trunk, as on a parlor chair or against an elaborate column. And above all, be consistent in the arrangement of the accessories. Do not place the subject in a rocking chair on the lawn, as I have seen done; and do not pose the subject in such a way that to move from the selected spot she must climb over some shrubbery or mangle a carefully groomed plot of bedding plants.

And try to be a reasonable camera mechanic. No natural eye ever saw a nose sharp and an ear blurred, at the same time. Let the features be plain and distinct without the wirey sharpness that characterizes the work of an unsuitable lens. It is not the costly lens that makes the pleasing, salable portrait; it is the trained mind that directs the hand that controls the stop and the exposure. Choosing the softer lights, seeing that the poses are graceful and natural, taking care to avoid inconsistencies in the accessories and the surroundings, and using lenses that have sufficient focal length to assure good drawing and at the same time sufficient sharpness to satisfy the normal eye, and good results will crown one's efforts in this direction.

The work itself requires only good photographic workmanship. The possibility of a good portrait should not be sacrificed to a desire to produce the purely pictorial. Out-door portraiture will never become passe; it is not faddish; but it is satisfying to one's patrons and a rent paying field of photographic endeavor that lies just outside our doors. Once entered into by the average intelligent worker who is inclined to become a studio drone, his mind will be broadened and his sphere of usefulness widened to a quite gratifying extent.

Regardless of the number of studios in every city, town or village, there are plenty of good subjects that have not been photographed, perfectly willing to be separated from some of their wealth, if they are only searched out and shown what can be produced. Even the individual who has recently enjoyed the pleasure of a visit to a studio, will quite often find much to interest in this somewhat more personal and individual form of portraiture. A little persuasive ability helps, but it is hardly necessary to have the qualifications accorded one of my out-in-the-open artist friends who, it is claimed, induced a prominent farmer in his locality to leave his work and have a try for a picture like one of the samples shown him, much to the surprise of his wife who had tried for thirty years to get him to visit a studio in town. But similar results are worth trying for, and in achieving success, one finds a fair reward.

Thinking leads man to knowledge. He may see and hear, and read and learn, whatever he pleases, and as much as he pleases; he will never know anything of it, except that which he has thought over, that which by thinking he has made the property of his mind.—Pestalozzi.

A Combination Printing Method

By Edgar Felloes

With Illustrations by the Author

With some, combination printing implies the addition of clouds from another negative to an otherwise "bald-headed" landscape; while others, still less versed in photographic practice, catalogue it as "something deucedly difficult" and let it go at that. Just what the objection to it may be does not matter; but there is no doubt but that the majority of the photographers are inclined to leave it severely alone. This is all wrong, as the subject is one well worthy the attention of the amateur, at least, as, with him, time is not of so great importance as it may be to the busy professional. By it, one is not only enabled to give variety to his work, but often to secure effects impossible by any other means.

By way of presenting the subject in an easily understandable manner, I have undertaken an example, something not too ambitious, just a background, something the average amateur can readily achieve, if only to give variety to the occasional home portrait. Here is the proposition, simply stated: We photograph our subject before a dark background, and, with that negative used as a mask in front of a film, we make another exposure, let us say, of a garden scene or a landscape, printing the two together to secure our finished picture.

The dark background of our first or portrait negative is represented as more or less clear glass, and this allows the image of the landscape or view to pass through and impress itself upon the sensitive plate or film placed at the back of, and in contact with, this first negative. Working in this way, the second or landscape exposure must, after development, register perfectly with the first or portrait plate; and it just naturally does so. If the second negative be made on a film it can be bound up in contact with the first and the two printed together in the usual way. The actual procedure, while quite as easy to carry out, is hardly so simple, for the reason that some shadow portions within the outline of the figure would also be quite thin in the first negative and, like the background, allow the landscape to print through.

With this preamble, I will proceed to a description of the method employed in making the print accompanying this article. Should the more advanced worker feel that I dwell too much upon trifles, he must remember that it is my desire to show the novice how "deucedly difficult" it isn't.

The camera used was a Premo, post card size, taking either cut films or plates, a camera fitted with a ground-glass focusing screen. The portrait was made in the living room of a city apartment, the dark background at the left being nothing more than a view into the adjoining kitchen where the shades had been pulled down. The model was posed at the side of the door, as shown, and the lens used at its full opening, f-8. On account of the cramped quarters,

an Eastman portrait attachment was affixed to the lens and an exposure of five seconds given; the time being made full because I wanted detail in the dark dress worn by the subject. An assistant held a white sheet to reflect light onto the shadow side of the figure, as the finished picture was intended to show the model standing at an open doorway, where there would naturally be a generous amount of light. Unfortunately, this was rather over-done; the sheet should not have been held quite as close as it was, the shadows being made too weak. This negative was made on a plate, while, for convenience, a film could have been used just as well; but in that event we would later have had to use a sheet of clear glass for its support.

FROM GLASS PLATE NEGATIVE

FROM FILM PACK NEGATIVE

When this portrait negative was developed, I found that, by reason of the full exposure, the light kitchen wall showed somewhat too plainly; that is, what should have been the dark background at the left in the negative was anything but clear glass. While the light wall was not intense enough to affect the picture, the white tiling at the back of the sink showed considerably stronger, too strongly to be ignored, and therefore required attention. I wrapped a rag over the end of my finger, dipped it into a mixture of alcohol and Bon Ami, only a little of the latter, and, with a circular motion, ground down the offending part, being careful to change frequently that portion of the rag that became soiled. This procedure quickly wears down the image along with the gelatine; but, as the emulsion becomes dry while it is being rubbed, one is liable to mark or scratch the negative if care is not used. The remedy is to keep the rag moist by frequent dipping in the alcohol mixture, even if it takes longer to effect the desired reduction. About ten minutes work and the job was done; not so beautifully done that the treated part exactly matched the rest of the wall, but

so that it averaged about the same; and, as the space was to be broken up with the landscape to be printed in, this inequality did not matter.

The next thing was to make an outline tracing of the figure on a piece of celluloid the same size as the negative; an old film with the gelatine removed answering the purpose admirably. This was placed against the coated or gelatine side of the negative; and, with a fine brush charged with opaque, the outline of the figure was traced. Beginning at the top of the door frame, the traced line drops down to the head as a solid line, but along the outline of the hair a dotted line was made. Continuing the door frame from the cheek to the shoulder is a solid line, while from that point down to the magazine, the outline is again dotted; but, around the magazine, the hand, and along the edge of the skirt, it was again traced in solid line. This was all the tracing that was necessary; and it takes longer to describe than did the actual work. The object of dotting in certain parts of the outline is this: it later indicates and reminds one of those portions of the figure that are thin in the negative and for that reason are to be favored when arranging the landscape. The negative and tracing were turned end for end and the word "TOP" lettered on the lower edge of the latter, or what is really the bottom of the traced outline.

FINISHED PRINT FROM COMBINED NEGATIVES

The next step in the process was to paint out, on the glass side of the negative, the entire figure, everything, in fact, except the clear glass background to be later occupied by the landscape. This blocking out is done with opaque, and the work is quite simple if one will but keep the eye directly over the part being painted, so that the thickness of the glass does not cause any trouble. No great skill is required, as any slip or error may be corrected by simply using the moistened finger tip. With this blocking out of the figure on the glass side of the negative, all was ready for the next step.

Taking the negative, a film-pack, a plateholder, two photo clips and a pair

of scissors into the dark-room, I drew a film to the back of the pack by pulling the proper tab, removed it and placed it face downward on the negative; this means both gelatine or coated sides in contact with each other. The film and the negative were then fastened together with the photo clips, the two turned over bringing the glass side of the negative uppermost, and with the scissors all superfluous film was trimmed away by cutting as close to the edges of the glass as possible. This is necessary, as films are made a little larger than the plate sizes under which they are listed. There is no necessity for working close to the ruby light, as the plate forms a perfect guide for the scissors in trimming.

Having trimmed the film to the same size as the plate and removed the clips, I put them both in the holder, the negative plate on top with its opaqued or glass side uppermost; and, I might add, it is quite important that the head of the portrait be downward, that is, towards what will be the bottom of the plateholder when the landscape is taken.

Later, I went to one of the parks for my background, not forgetting to take the celluloid tracing with its solid and dotted outline of the figure. And the finding of a suitable bit of landscape was not as easy as it would seem. Just a pretty background would not answer, as I wanted one that would conform to the requirements of my portrait negative. I examined several selections on the ground-glass, only to reject them as soon as I placed the tracing thereon. The reader will remember my statement that certain parts of the negative, marked by the dotted outline, had to be favored. This made it necessary for me to choose a compostion in which those to-be-favored parts would merge more or less into the background. For example, it would have been courting trouble to have brought the outline of the hair against a bright sky or anything light. Carelessness of that sort would have resulted in a hard, cut-out effect, difficult to overcome. The dotted shoulder also required the same kindly consideration.

This will give the reader an appreciation of the value of the tracing, so easily made. And a neglect to mark it, as advised, would give him another realization of the value of small things. When holding the tracing against the ground-glass, one must see that the word "TOP" reads correctly from left to right; were the tracing inadvertently reversed it would read "POT", and to pot is just where one's efforts would go. In making my landscape exposure, I did not make any allowance for the thickness of the glass negative in front of the film, as I did not want the landscape sharp; in fact, it would perhaps have been better to have made it slightly more diffused than is here shown. The background was tray developed, and I think that preferable to the tank method for this particular purpose.

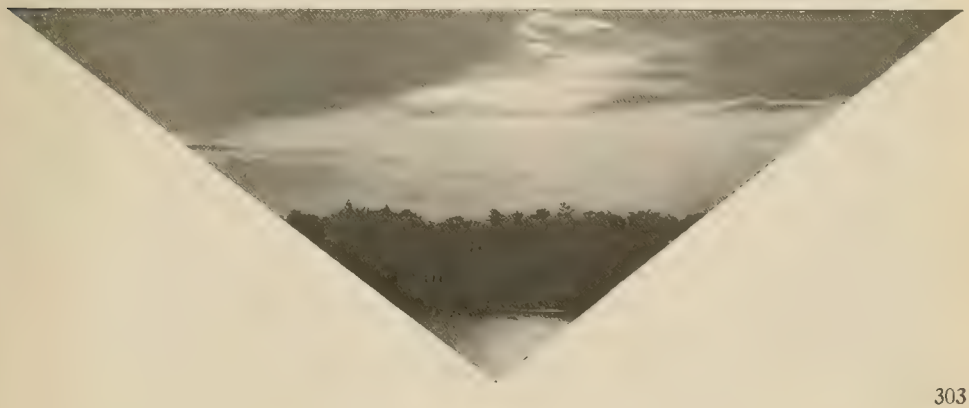
When the film negative was dry, I again placed it face to face with the glass portrait negative, the opaque on the back of the former having been removed with a damp cloth. By holding up to a window, the two were shifted into perfect register; and, while so held, an assistant placed two photo clips, one on each side, clamping the film and glass together. If the opaquing is properly done, there is absolutely no diffculty in registering the two negatives.

The next thing done was to bind the film and plate together with lantern-slide binding, moistened and placed along the top edge, hinge fashion. When

this was dry, the two clips were removed and I was ready for the proof; and, believe me, this part of the game is interesting, even for the old hand. The proof was made, showing perfect register, but the patches of sky were too brilliant, challenging the face of the subject. As the face was to be the main point of interest with everything made subordinate thereto, these high-lights had to be toned down. The two negatives were separated by breaking the paper hinge and the film was placed in a tray of water for about a half hour to soften the emulsion. Removing the piece of binding strip, the emulsion side was mopped off with a tuft of damp cotton and some red prussiate and hypo reducer applied to the offending high-lights with a small brush. The beginner will find the formula for this simple reducer in any of the hand-books or annuals. After the necessary reduction has been secured, the film was washed, dried and again bound up in register with the portrait negative. The second print, then made, is reproduced herewith, and the reader can judge as to the results. As I did not wish to confuse the reader by doing any work on the negative or prints other than here described, the rather too strong door frame above the subject's head, the strong light on the edge of the magazine, and the light strip at the extreme left of the picture were all allowed to remain as shown. They should have been toned down with the reducer or by etching upon the film side of the glass or portrait negative.

Just a few hints before I close: Do not court difficulties, try to dodge them; for example, loose or wavy hair should not encroach upon that part of the background to be supplied by the second or film negative. A hat or a parasol will overcome such a difficulty by supplying a much better outline to be followed. A light dress is more easily blocked out than a dark one, and three-quarter length figures, or less, are preferable to the full length, though the latter present no great difficulty. Anyone who can expose and develop a plate can produce as good results as the one shown; and the work is really more simple than this lengthy description may lead the reader to believe.

Not our logical, mensurative faculty, but our imaginative one is king over us; I might say, priest and prophet to lead us heavenward, or magician and wizard to lead us hellward.—CARLYLE.



About Bromide Enlarging

By Frank B. Howe

An Illustrated Talk Delivered Before the California Camera Club

At the very outset, it must be made clear that the reason I am here to take up your time is not that I differ at all from any other bromide worker. It is simply because I am professionally interested in that particular photographic field and, in that connection, find it necessary to keep in touch with new methods of work employed therein, sifting the better ones from those of less value. The subject of bromide enlarging is such a vast one, one having so many allied topics, that I shall deal only with such processes and manipulations as, in so far as I know, are not available in print. Many will perhaps be old to you; others you will not care for; yet some, I hope, will at least serve the purpose of furnishing new incentive for experiment and consideration. With this preliminary, and without further ado, I will proceed at once to business, that we may get as far as possible in the time we have.

There are five main topics that I want to discuss. In order, they are: Apparatus and lenses; papers; exposure and fancy printing; development and redevelopment; and what we may call "stunts." These last will, I think, prove the most interesting, and I will therefore get through the others as quickly as possible.

Those of you who, like myself, enjoy having a little place fixed up in the cellar or the garage, a place where you can splash around, spill hypo to your heart's content, and otherwise enjoy yourself without incurring the horrified and sarcastic displeasure of your immediate family, will be glad, I think, to know that it is possible to have an enlarging apparatus which does not require an arc light, a Cooper-Hewitt tube, or daylight. Neither is it necessary to cut a hole in the wall or block out a window in order that it may be installed. Briefly, the apparatus may be called a Mazda lamp enlarging illuminator. A box about eighteen inches square and eight or ten inches deep is built, leaving one of its large sides open, as, in use, it stands on one of its narrow sides. Mirror glass is attached to the inner surface of the back and four sides of this box, completely lining it with reflecting surfaces. In the center of the back a hole is cut to accommodate an ordinary electric light socket; and four other sockets are also fitted, two on each side, so that the four lamps, when screwed in, will have their ends about an inch from the central one. By using two pieces of mirror to line the back of the box the glass dealer has only to pinch out two semi-circles, one in each half where the two come together down the center, and so doing will be much less expensive than cutting a round hole in the center of a piece large enough to cover the entire back. The same applies to the sides. These large blue lamps, seventy-five watts I think they call them, are the best and

comparatively inexpensive. On the front of this box is built a framework like the smaller wooden one that comes around a comb of honey, with cleats inside holding a sheet of ground-glass. If, later, one sheet is found to be not enough, more can be added. To the front of this last is added still another frame, one somewhat like a picture frame, with its inside opening just large enough to take the back of your camera snugly. That is all there is to the apparatus. You then simply put your camera in the opening, after having first removed the ground-glass focusing screen, slip the negative into a plateholder from which the septum or center has been removed, and you are ready for business. In cutting away this septum, leave about one-eighth inch of the material for support around the edges. A film negative can, of course, be placed between two pieces of clear glass fitting the holder while a smaller negative can be placed in a kit or lightly attached to a clear glass. You will note that this apparatus, rightly constructed, is light-tight; and it can be set up anywhere in a room. If you are using a kodak or other camera that is without a plate attachment, you can make the section carrying the ground-glass a little wider and cut a slit in one side so that the plateholder carrying the negative can be inserted there.

It is hardly necessary to mention lenses. Any ordinary lens will do, but an anastigmat is more desirable because a rectilinear will not cover a flat field; that is, the edges will not be sharp. Without desiring to recommend any one manufacturer as against another, I might say that the IIB Tessar, which has a speed of f-6.3, is the type of lens you will want. For enlarging, the speed is not as important as is flatness of field; and any lens which gives the latter will do. The ideal lens for enlarging has a focal length equal to the diagonal of the plate, lens makers agree in telling us. You will understand that I am touching on this subject of lenses only briefly, because it is one that is covered in innumerable books and articles very much more interestingly and at greater length than I can hope to achieve. If your only available lens is a rapid rectilinear—and haven't we all, put away somewhere, whether we admit it or not, such a lens for which we have a secret fondness that we never will have for the finest anastigmat made?—if, as I say, you have only such a lens, do not think you cannot make good enlargements with it, for you can. But a good anastigmat is the better optical equipment; if you have one, it is the lens to use.

As to papers, very little need be said, I think, because there is ample to be found in print on that subject. In case any of you are not familiar with bromide enlarging, I might suggest that the P. M. C. papers will be found very satisfactory to start experimenting with. The No. 2 is a fine single weight paper with smooth surface, while No. 6 is a double weight paper with smooth matte surface. No. 7 is a double weight, rough surface paper that, to my way of thinking, is the most satisfactory all-around enlarging paper made; although, of course, its rough surface precludes its use in the case of some negatives. No. 8 is a buff paper; but I think you will prefer Royal Bromide when a buff tint is desired. Carbon Black Artura is not, strictly speaking, within the confines of our topic; but it is a very useful paper when other kinds do not quite produce what you want. It is especially good for enlarged portraits. As related to the subject, I have here a little table of relative speeds which you may find useful,

I am not quite sure where I got it; and, while I can't vouch for its technical accuracy, I do know that in practice it seems to work very nicely, and I pass it on for what it is worth. Taking P. M. C. Bromide as a standard, Artura Carbon Black requires sixteen times, Hard Azo ninety-six times, and Special Velox seventy-two times. You may find these figures useful, because, when you run against a negative that is too thin or too flat for bromide paper, Velox or Azo will frequently produce a nice enlargement. The new Cyko enlarging paper seems to be pretty good, and there is a "contrast" grade that is excellent when contrast is needed.

So much for the materials. Let us get down to the actual making of the print. You doubtless have no trouble with straight enlarging, so we will proceed directly to the matter of exposing, with special consideration to so-called fancy printing. The soft-focus or mezzotint effect, which is the result of a diffused picture from a sharp negative, is easily achieved in enlarging. We first focus sharply, then rack out the lens until the image is slightly out of focus, place the paper in position, open the shutter, and give about one-fourth the exposure, after which the lens is drawn back into the sharp-focus position and the balance of the exposure given. Of course, the proportioning of the two exposures will vary with individual pictures; but one-fourth soft focus and three-fourths sharp seems best to fit the average case.

And, by the way, let me urge you to make, if you already haven't one, a transparent yellow cap for your lens. With it in position you can place the paper on the easel and focus right through the yellow screen without danger of fogging the paper, thereby seeing just how you are placing it on the paper. There are not a few advantages in using this screen. You can make one in a few minutes by taking a lens cap, cutting out the top and gluing a piece of orange Kodaloid over it. If you haven't any Kodaloid at hand, run a piece of undeveloped film through the hypo, wash it and soak it in red ink until it acquires the proper depth of color.

Those wide-border, countersunk enlargements which have become popular of late under the names of Velvetone, Brunertype, and the like, are easily made and beautiful in effect. They are produced commercially on P. M. C. No. 7, through a Verito lens; but, if you haven't a soft-focus lens, you can get a like effect by making the exposure with a stretcher covered with silk bolting cloth moved around about half an inch in front of the paper while the exposure is being made. Leave four or five inches of white border around the picture and develop for a cold gray tone, using not too much bromide, nor, indeed, too little. Brown and green tones do not look well for this type of print. Let the image develop slowly, with good brilliancy, and above all be sure to so expose that it takes full development—about two minutes or more—when using P. M. C. and the normal developer. Take the dry print, lay it over a sheet of glass with a light underneath, place a sheet of heavy celluloid, cut the right size for the desired "plate-sunk" effect between, and rub down the outside margin, thus countersinking the picture. The celluloid, being transparent, facilitates the centering of the picture; and, for rubbing down, one of the ball bearing embossing tools is fine; but, if not available, you can get the same

ETCHING EFFECT

GUM PRINT EFFECT

result by using an old tooth-brush handle. Then trim the print to get neat, clean edges, and you have a beautiful picture.

To make prints resembling an etching, make a positive from your negative, using a process plate. Reduce it, getting it pretty thin; and flow the back with ground-glass substitute. Then lay this over the negative, with a light below, and, on the ground-glass surface, sketch in the picture with pencil. Then make a negative from this and from this last you can make a straight enlargement which will have the etching effect. It sounds complicated, but try it, and you will find it is really very easy to do; and it gives a novel effect, one that is very pleasing.

A bas relief effect can be very easily obtained in enlarging. Make a positive on a plate or film,—commercial film is fine,—getting it as near as you can to the same density and contrast as the negative. Put the two together, face to face, keeping them slightly out of register; make a negative, slip it into your enlarging camera and proceed as for an ordinary enlargement.

If you like gum prints, but do not like the work connected therewith, or if you lack the time necessary, you can get the same effect quite easily by straight enlarging. Make an enlargement on P. M. C. No. 2, getting it about three shades darker than you wish the picture to be. From this, by contact, make a paper negative, also on P. M. C. No. 2. Soak this in a solution composed of eight parts of castor oil and two parts of ether. Incidentally, do not inhale too much of the ether, or the world may be deprived of the beautiful picture you are about to produce. And do not forget to keep the bottle tightly corked or the ether may go away and leave you. After soaking the paper negative in this, blot it, place between dry blotters and use a hot iron until it is dry. Then make a contact print from your paper negative in the ordinary way, and you have what is, to all appearances, a gum print. I might add that this

is the basis for the so-called Qualitone prints that I am making commercially from amateur negatives. To make them commercially practical, we have completely to reverse the process, so that, as now used, the method would hardly suggest the parent idea. But just as the above process is impractical for commercial use, so is our method impractical when only a few prints are to be made, and therefore the outlined process is the one you will want to use. And may I ask that you keep in the family this much of what I have told you?

To come back to bolting cloth for a moment. There are all sorts of possibilities in that material. You can put it on a stretcher and, by holding it in contact with the paper, while exposing, secure a delightful canvas or linen effect. By keeping the stretcher from a quarter of an inch to an inch away from the paper, you can get softness without loosing detail or producing diffusion or fuzziness. Using the bolting cloth will necessitate about a third more than normal exposure. And be sure not to get cloth that has been folded or there will be a corresponding line in the picture. You can buy the cloth in rolls, glue it on the stretcher, and thus eliminate this difficulty.

Softness can also be secured by exposing through a lens cap, made like the yellow one described, but covered with silk chiffon instead. While the

MEZZOTINT EFFECT

THROUGH CHIFFON

THROUGH BOLTING CLOTH

chiffon is a department store commodity, it is well worth braving the peril attending its purchase, for it is very satisfactory as a softener. Still another method of softening the picture is to wave a piece of ground-glass or ground celluloid as close to the lens as you can, during exposure; the ground-side being towards the lens. If too much diffusion is thus secured, do it for only a part of the exposure.

To produce white borders on enlargements is a problem that has two

solutions. You can either use a mask having an opening the size of the enlargement, using it against the paper, or mask the negative. The former produces a sharp edge which looks all right when the picture is sharp, but one that, to me, seems out of place and inartistic for a soft picture. It is somewhat more trouble to mask the negative exactly than it is to mask the enlargement; but I think that, in most cases, it is worth the trouble; for the softness so gained is in proportion and harmonious with the softness of the picture. Sometimes, though, when an excessively long exposure has to be given, you will

FROM ORIGINAL NEGATIVE

BAS RELIEF EFFECT

get halation unless you use the larger mask in contact with the paper. To eliminate the sharp border objection noted above, you can use both, fitting the mask against the paper very accurately so that it will come about one-sixteenth of an inch outside the projected image all around. Frequently, of course, you will not care about the border, and then, naturally, it is a waste of time to mask the negative, it being only necessary to slip a mat over the paper. The other plan is suggested as being more artistic and satisfactory in most cases.

Now, before we go on, just a few words about vignetting. If you do not like the vignetting affair that is on sale, one that looks like an instrument

formerly used for scaling fish, try some other method. The best known is to use a piece of cardboard somewhat larger than the enlargement being made, in which has been cut a hole of the general shape and about half the size of the desired vignette. By making the exposure through this, holding it about half way between lens and paper and moving it about to avoid a sharp edge, you can produce nice results. Or you can cut a hole in the cardboard about the size you want the vignette, pin it over your bolting cloth frame, and use it close to the paper—about half an inch away.

As to developers, you are pretty safe in sticking to what the manufacturer recommends. Any developer that gives good brilliancy and works with average speed will do. Bromide enlarging requires slow and full development for best results. The proper use of potassium bromide is very important in enlarging; more so, I think, than in printing, where it does not matter so much what tone results. Under-exposure and forced development are less disastrous than the reverse. If a print refuses to come up with proper brilliancy, you can sometimes "snap it up" a little by adding to every five ounces of the normal elon-hydroquinone developer, the following solution:

Bromide of potassium, saturated solution..... 6 drops
Nitric acid, C. P..... 2 drops
Prussiate of potash, red..... 3 grains

There is another way to "snap up" a developer, but I hesitate somewhat in telling it, for I know you will say, "Heavens! Did they bring that man five hundred miles to tell us to put hypo in the developer?" Perhaps the crime will not seem so reprehensible if we dignify the requisite chemical with its real name, sodium thiosulphate. At any rate, call it what you will, I will bravely suggest that, when a print positively refuses to come up with the desired snap and brilliancy, you add, as a last resort before giving it up, one drop of a twenty-five per cent solution of hypo to each ten ounces of developer. A friend of mine to whom I made this suggestion understood me to say one ounce. He hardly got the results he expected.

Local development, or the hastening of development in some one part of the picture, can be used, in connection with shading and dodging in exposure, to correct uneven densities in the negative. The best way I have ever employed, and one I have never seen described in print, is: Take a bottle and fill it with undiluted stock developing solution, and, instead of a cork, use a wad of cotton in the neck. Then, during development, simply hold the bottle upside down and rub that portion of the image it is desired to strengthen, while the rest goes on developing normally. This has the advantage over local rubbing, heating, and like methods, in that there is practically no danger of staining, since the print is kept fully immersed in the developer during the entire process. Still another plan is to blow upon the desired part, through a tube, and thereby keep a current of air on the portion it seems desirable to speed up. This last is particularly useful in building up small places, while the bottle with the cotton stopple is more useful for larger areas.

A good little "stunt" that is most effective, particularly when making small enlargements, where it is difficult to shade evenly, is this: Put the paper in

AS NEGATIVE PRINTS GROUND-GLASS WORK RESULTANT PRINT

an ordinary printing frame behind a sheet of ground-glass facing out; that is, with the ground surface away from the paper. You can use celluloid with a ground surface by placing a sheet of clear glass between it and the paper. Put the frame in postion on the enlarging easel, and focus. With the focused image projected through the yellow cap, dab a little vaseline on the ground-glass at places where more exposure is wanted. Rub it in well to get it even, and expose. The vaseline makes the ground-glass transparent while the ungreased parts hold back the light. Similarly, you can hold back certain parts still more, if necessary, by rubbing finely powdered green chalk on the ground-glass surface directly over them.

I have a suggestion or two to make regarding redevelopment that may be worth the time required to mention them. In the first place, by lessening the amount of bromide in the original developer, you can, to a great extent, eliminate the disagreeable tone of yellow in the sepias. Or, if you are making black and whites at the time, and cannot, therefore, cut down the bromide below normal, try soaking the print in the sulphide solution of the redeveloper, before bleaching. In fact, I believe that the latter plan is, after all, better than varying the bromide in the developer. I can positively guarantee, if you will soak the print three minutes in the redeveloper before bleaching it, that not only will you get a beautiful chocolate brown, with no trace of yellow, but that the density of the sepia print will be exactly the same as was the black and white. These two advantages are rather big ones, and well worth while. Try it out some time.

Do you occasionally get blue spots in the paper after redeveloping? Try adding a little oxalic acid and oxalate of potash to the redeveloping solution. It doesn't always work, but oftentimes will save a picture. A fresh sulphide solution occasionally eliminates the trouble. And here is another "stunt" that may be worth while. To produce pictures that are part sepia and part black and

white, get a ten or fifteen cent tube of what is called "Jiffy Solution," used for mending bicycle tires, and pour some of this over the parts you want to remain black and white during redevelopment. It dries quickly and is easily peeled off after the print has been redeveloped in the usual way. With a little judgment you can use this solution to produce some delightful effects; warm toned faces and arms with cool toned drapery; warm sunlight splashes with cool looking shadows, and so on. A plain collodion, such as the druggists sell, might answer as well or better; I have not tried it.

Now, a few miscellaneous kinks that may be of use to you, and I am through. These in a sort of hit or miss fashion, just as they come to me, and I'll go through them quickly.

To remove a scratch on the glass side of a negative, make a fine thick paste of emery powder and water, apply with a piece of flannel and rub until the edges of the scratch are literally cut off. The scratch will not show in the print and this is quicker than spotting, particularly if a lot of prints are to be made from one negative.

To hold back faces and other small areas that print too dark, two methods are applicable. Use a piece of cardboard on the end of a wire—a hat-pin is good, taking care to move the wire sufficiently to avoid its making a light streak on the print. If the exposure is not long enough to permit enough of this dodging without it showing on the print, stop down. And, speaking of stopping down, quite often you can increase contrast by stopping down judiciously. As a rule, however, in enlarging, a stop about f-16 is ideal; and I think we are safe in saying that an exposure of not less than fifteen seconds is desirable. The longer the exposure required the better for the picture, if you have the patience.

The other method consists of using a narrow strip of glass with a spot of opaque on one end. This is somewhat better than the cardboard and wire method, for it cannot produce a white line if you neglect the moving, as the exposure goes on right through the glass.

Double printing should not be overlooked, as enlarging offers the widest possible field for its application. And here is where the yellow cap is again indispensible. Put the negative in place with yellow cap on lens and paper in position. Then fit up a strip of cardboard to shade the sky portion, fastening it a little away from the paper so that there will be a soft, vignetted edge to the landscape, not a sharp outline. Mark where the sky line comes at the two sides of the picture, make the exposure and remove the negative. With the yellow cap again in position, the exposure having been made by removing it, locate the clouds just right on the paper, using the pencil marks at the sides as a guide. Move the masking cardboard to the other side to shade the part already exposed, and print in the clouds.

Gray or tinted borders are produced in exactly the same way as in contact printing. If you are not familiar with the cutting of the mats, you will find it all minutely described in "The Velox Book," distributed free by all Eastman dealers. So I won't take up your time with the process here.

To get a negative that, when exposed in contact with the picture negative,

will give a canvas effect: Get a piece of hair-cloth from the tailor, set it up so that the light strikes across it from one side, and photograph it, developing for contrast. A quick-acting reducer will sometimes improve such a negative and prevent its making the exposure too long when in use.

Occasionally you will want to make a particularly nice looking job of enlarging one figure from a group, and here is a good method of procedure. Make a regular enlargement from the group negative, place it in an ordinary printing frame with a sheet of clear glass in front and the picture side of the print towards the glass. Mix opaque and whiting until you have a very light gray substance. Paint this all over the glass around the figure you want to separate from the group, just as you would were you blocking out a negative. Next put a deposit of soot all over the glass, opaque and all, by holding it over a kerosene lamp. Carefully wipe away the soot from the clear glass over the figure, and then work in some shading or design around this clear space by wiping off the soot so as to leave the gray opaque showing through in places. After you have a nice background design worked in, copy the whole thing through a sheet of glass. Have a piece of black cloth, with a hole cut in it for the lens, suspended in front of the camera in order to prevent reflections from the glass. The result will be a nice negative of the desired figure, with a tapestry effect background; that is, if your work with the gray opaque and the soot was well done.

This, I believe, is about the extent of the suggestions I have to offer you on the subject of bromide enlarging. As I warned you, there are, perhaps, a lot of old ones among them; but, if one or two are new and useful, the time spent in talking them over has not been misspent. Bromide enlarging is one of the most satisfying of the photographic processes, and one of the most plastic. If you haven't really gone into it as yet, let me urge you to do so. Really, it's worth the effort.

Your prime one need is to do right, under whatever compulsion. And then you are a man.—RUSKIN.

The Photographer's Dream

By Henry Hall

In the deeps of dark and of slumber,
I dreamed that the curtains of night
    Were parted;
And there, on the wainscot above me,
    I saw
All bathed in delicate light,
        A picture.

'Twas only a child in its playing,
But O,
The delight of its lilting laughter!
And the tender ethereal glow
Of sun,
And of shade that comes after!
And all so true,

That I said (or it seemed that I said), in my dreaming,
"Surely this by no mortal was made.
" 'Tis but
"A dream of ineffable beauty
"Woven
"Of Life, and of Light, and of Shade—
"A dream!"

And then, by my side, a Vision,
A Presence illumined by a heavenly grace,
Spoke softly:
" 'Tis but a photograph taken
"By one
"Who has dreamed, and whose dreams efface
"The crude
"And the rude, and the false in expression,
"And———————————
"———————————
"———————————!"
I awoke!

A Copying Process

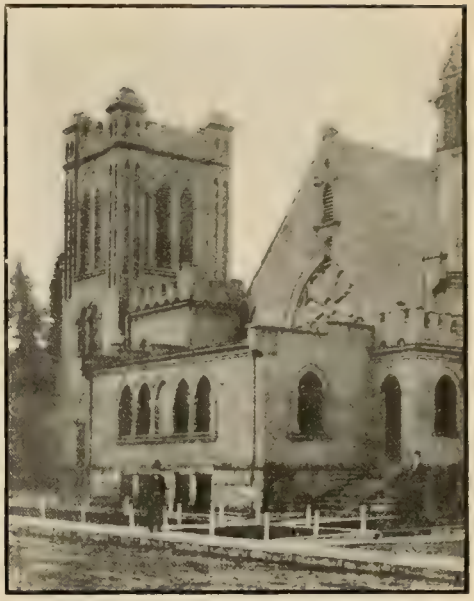
By C. C. Conlee

With Illustrations by the Author

I have recently worked out and perfected a process for obtaining a photographic reproduction of any illustration, photograph or lithograph, without the aid of camera, films or plates. The process is as follows:

In case of a magazine illustration, first immerse the print in hot water, allowing it to remain until thoroughly saturated, then take it out and lay it face down on a sheet of glass and strip off one of the layers of paper. Almost all magazine

THE ORIGINAL PHOTOGRAPH



REPRODUCTION OF ORIGINAL

paper consists of two layers, one of which can be easily separated by commencing at the edges and rubbing gently with the tip of the finger. Be careful not to rub too hard, as there is a liability of making the resultant negative too thin in that particular spot. After separating the two layers, allow the paper to dry; then render it transparent, by any of the ordinary methods of waxing or oiling, seeing that it is clean and dry before attempting to make the negative print.

Two methods can be used to make the negative: One by making the negative print on a thin printing-out paper and making it transparent as in the first instance, or by sensitizing a sheet of glassine paper and printing the negative on that. Either method yields good results. After the negative is finished and rendered transparent in the same manner as the original, it is ready to print from on any kind of printing-out paper one may choose to use. The paper negative is easy to spot and retouch, no varnish or retouching medium being necessary.

THE NEGATIVE ON PRINTING-OUT PAPER

My address is 406 East First Street, Dayton, Ohio, and I will be pleased to answer any questions in regard to this process on receipt of a self-addressed stamped envelope.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

HANDY PRINT TRIMMER: Discarded safety razor blades make excellent print-trimming knives if supplied with a handle. This last should be short and stubby, the tendency being to make them too much like a penholder. Slit the end, shove in the blade and put in a small screw where it will pass through the hole in the blade last to enter the slot. Only a small portion of the blade need be left exposed and when its two sides are no longer sharp the screw can be removed and the blade reversed.—D. F. G., New Hampshire.

MY TRIPOD STAY: A strap, heavy enough to be serviceable, is not near so good for carrying a camera case, as is a chain. I long ago substituted a leather shoulder piece of generous width, with two pieces of chain, one for each end, for my strap. These last were provided with snaps at both ends and I was not long in discovering that it was not a difficult matter to adapt them to my tripod legs, when using the camera in dangerous places, so a third length of chain was ordered. Furthermore, by having a stout ring attached to the tripod screw, the three chains can be used to snap them together and their ends into the ring and provide a sling in which I could insert the ball of my foot and hold the camera perfectly steady when the wind was blowing, adjusting the length so that my heel rested on the ground.—T. C. F., Illinois.

RESTORING FADED PRINTS: I am very fond of trying the various methods of restoring prints, but with little success. A solution composed of one-half saturated solution mercuric bichloride and one-half water will remove the yellowness from albumen and gelatine-chloride prints, and sometimes redevelopment or an ammonia solution will increase the strength of the image. Where the image is yellowed and the paper still fairly white, the print will generally give a surprisingly good copy, one much stronger than the original. Sometimes it is a good plan to carefully strip the print and use it as a negative in making a contact print on a glass plate, this last being a negative from which new prints can be made. If the paper is yellow in tint, let the plate be an orthochromatic and put a sheet of orange-red glass over the front of the printing frame. This will greatly increase the exposure, of course, but this is no great disadvantage, as without such screening the light of a match would suffice. In copying yellow prints, use the orange-red filter and an orthochromatic plate if the paper is yellow, if only the image is yellow, use a plain plate blue filter, if any.—T. S. S., Oregon.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXVI San Francisco, California, August, 1919 No. 8

Our Frontispiece This Month

The picture, "A Daughter of Confucius", is interesting in itself, interesting in a high degree, but a few facts concerning it may also be of interest to the reader. The picture was taken in the courtyard of the temple, located on the site of the first Chinese temple built in San Francisco and destroyed by the great fire of 1906. This temple, like its predecessor, is the only one in the entire West, owned, both as to building and grounds, entirely by a Chinese society. Lollian Ying Low, who posed for the picture, the only Chinese model on the Pacific Coast, finds regular employment in the San Francisco Institute of Art, her earnings going to defray the expenses of her education. She is a pupil in the Lowell Girls' High School, a descendant of one of the founders of the first temple, and is withall, a charming little lady who enjoys the good wishes and esteem of a wide circle of friends.

A Different Exhibition

Much as there is to commend in the holding of exhibitions along the prescribed lines and much as these same exhibitions do to promote the advancement and an interest therein, they are open to a little criticism on a few scores. The most important point in which they fail is their tendency to somewhat hamper the individuality of at least some of the exhibitors. It is a well known fact that not a few workers are more or less governed by the character of the exhibition in the production of the pictures they intend to submit to any particular one. For one exhibition they feel that something theatrical stands the best chance, for another there must be softness if one would succeed, and for a third the work must be technically good and the story easily understandable. And these things regardless of the worker's individual style. The tendency to adopt this plan of catering to the jury is a destructive one; and more, it denies us that insight that an unhampered selection would give. To feel that we know Smith, his work, his aspirations, his aims, we want to see the pictures that he thinks are his best, that he has found that most joy in producing, that come nearest to a realization of what he has aimed to produce. Quite true, those of Smith's pictures that answer this description might never be accepted by the jury of a certain exhibition, a jury that Smith finds no great difficulty in pleasing when he deliberately sets out to do so. And, quite truly, Smith may not seriously impair his own individuality in this deliberate making of exhibition pictures to fit the requirements. But the coming Smiths get the wrong idea and we, who view the exhibition, are denied an insight into Smith's aims and aspirations, into his plan and personality that a more unhampered procedure would give.

But granting that our exhibitions are conducted on the plan most beneficial to the advancement of pictorial photography, when all is considered, and we

must remember that the photographer himself is not always a qualified judge, can not we have at least a few minor exhibitions made up of pictures such as the photographers themselves consider the nearest approach to their individual ideas of what a picture should be like? Would not such exhibitions have more of the vitality, more of the personality, the true inwardness of the artists who contributed thereto? The idea has been suggested to us by one whose modesty we will for the present respect, and we believe it to be excellent. Any active club could easily get up such a set or collection, and a number of clubs so doing could easily form an interexchange based thereon. The plan proving popular, and worthy of more extended consideration, the less meritorious work could be weeded out in order to reduce the bulk, and an annual exhibition held. Here, of course, we would come right back to the jury of selection method, but that could be so arranged that a broader and more democratic selection would characterize the work. The plan has much to commend it and we are quite sure that it will not be long before some one or more enterprising clubs start the assemblage of something along the line of "My Favorite Picture" collection. And doing so, we are quite certain that still other clubs will be well pleased to follow the example in order to exchange such collections for their own walls.

The Third Los Angeles Salon

An announcement reaches us that the Third International Photographic Salon, under the auspices of the Camera Pictorialists of Los Angeles, will be held in the Gallery of Fine and Applied Arts, Exposition Park, January third to thirty-first, 1920. The aim is to exhibit only that class of work in pictorial photography in which there is distinct evidence of personal artistic feeling and execution. All work submitted to the jury of selection will be carefully and impartially considered, but no picture will be eligible that has been previously exhibited in Los Angeles. Any number of prints may be sent in but only six from any one exhibitor will be hung. All prints from this country must be mounted; prints from abroad may be sent unmounted. On the back of each print or mount must be the number, title, and name of artist, to correspond with data on entry blank. A fee of fifty cents must accompany each entry blank, this fee covering any number of prints from any one exhibitor. All pictorialists are cordially invited to contribute. Address all correspondence and send entrance fee to Ernest Williams, Secretary, Room 31, Walker Auditorium, Los Angeles, California. As usual, copies of the prospectus and entry blank may be obtained at this office.

Reality is, no doubt, greater and more vital to know, in so real a world and life, than any fiction; and the thought of God, which the facts are, are infinitely more precious than the fancies of men about them, or even according to them; yet in man's power of fancying, or fantasying, in harmony with the facts, the measure of his knowledge of it and vital relationship to it, and the divinely appointed means withal whereby the fact itself is brought home to our affections. —Wood.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Coloring and Frosting Electric Bulbs

The Pharmaceutical Journal gives the following formulæ: The varnishes for coloring electric light bulbs are usually made by dissolving two to three per cent of sheet celluloid in amyl acetate, aiding solution with a little methylated spirit, and then adding the desired aniline coloring. For producing a frosted or opaque effect, a sufficient quantity of light magnesia may be incorporated with the varnish; a very little quantity will suffice for the purpose. Or the frosting effect might be secured by first coating the bulbs with a solution of magnesium sulphate, three parts; zinc sulphate, three parts; dextrin, two parts; in water, twenty parts, drying thoroughly before immersing in or coating with the celluloid varnish. An American method of coloring is: Make a solution by mixing the white of one egg, previously beaten to a froth, with one pint of distilled water. Filter, and skim the surface free of bubbles. The globes to be colored are thoroughly cleaned and polished, then dipped in the liquid and hung up to dry. When dry, the dipping is repeated, and they are dried again thoroughly. The coloring solution is made by dissolving ten to thirty grains of any soluble aniline dye in four fluid ounces of collodion. In this the prepared globes are dipped and hung up to dry. The dipping is repeated if a darker tint is required.—*British Journal of Photography.*

A Bichromate-Mercury Intensifier

It was while working under active service conditions that the experiments leading to the discovery of a new method of intensifying negatives was made. Some very brilliant results were required in the way of transparencies, and the only plates in stock of the size wanted were very stale, and though labeled "Process", would not give even ordinary printing density. So the only thing to do was to make the best possible, and then clear and intensify as much as possible. Lead was tried, but owing to the lack of proper washing accommodation, bad water, and also to the strong color it gives to the very slightest trace of veil in the whites, it did not answer in this case. After trying every method that I could to persuade the "quarter-bloke" in charge of the stores to let me have the material without the usual circumlocution, and still not getting enough density, I began to experiment, and eventually found a method of greatly increasing the density without risk of stain provided that the negative was thoroughly fixed.

The procedure finally adopted was to bleach the negative in an acidified solution of potassium bichromate, as for chromium intensification, and then, after washing for a short while, immersing in a mercury-iodide solution, and after a further wash to darken the bleached image in a sulphide bath; or else in a hydroquinone developer if there were any likelihood of subsequent reducing being called for.

I found that a lot of washing, after fixing the plate, between the various baths, was not essential to clean working, and the increase in density was far greater than I have been able to get with any other intensifier except lead. If the bichromate is not all out before the negative goes into the mercury bath, it comes out into that solution, but does not seem to affect its working.

Like the mercury-ammonia intensifier, which it easily beats for density giving power, this new method can be worked without accurately weighed and measured solutions, but in that case it requires rather a lot of bottles. Being minus reference books or any accurate measures at the time referred to, I got on quite well without, and did not find any appreciable difference resulting from varying strengths and proportions of ingredients of solutions. The way I arranged matters was, first of all, to keep a saturated solution of potassium bichromate, of which a little was diluted for use as

required, and a few drops of hydrochloric acid added. If this did not bleach it was poured into a jar, and a few more drops of acid poured in. This bleaching bath does not keep, so it was thrown away after use. The mercury-iodide bath, on the other hand, keeps well in the dark-room, and can be used over and over again. As I had no formula by me, I made a fairly strong solution of each of mercury bichloride and potassium iodide. Then a little of the latter was put aside, and into the remainder I poured the mercury solution a little at a time, well stirring and shaking to dissolve the red precipitate that forms when these two chemicals are mixed. A point is reached when a little of the red powder fails to re-dissolve, and it was to get this into solution that the small quantity of the potassium iodide liquor was kept aside. On adding this to the bulk the precipitate disappeared. This strong solution was kept for stock, and was used diluted, but both the stock and working solutions appeared to keep well.

The sulphide solution was made as required from the crystal, but there is no reason why a stock solution should not also be employed for this. The used liquor should not be kept after the same day, as in the case of bromide toning. It seemed difficult to get the image thoroughly sulphided right through, so that if the density was too great some reduction was obtained by simply immersing the negative in a hypo bath. Another useful point with this intensifier, as in some others, is that if the plate before sulphiding is seen to be too dense or the lines are veiled, a dip in hypo solution will clear it. Of course, this means another good wash before sulphiding, and it should be pointed out that these extreme methods of working are seldom suitable for anything but line work, as the unevennesses of the emulsion are usually very much accentuated by employing strong measures.—D. CHARLES, in *British Journal of Photography.*

True to Nature Photographs

Quite apart from any consideration of the artistic composition of a photograph, it must have been borne upon the mind of every photographer, or, indeed, on the mind of every one who carefully considers a photograph, that there is some relation between the distance of the object photographed, the focal length of the lens, and stop, which will give the most pleasing results. Further, the photograph can be viewed from a particular distance which may be better than any other.

It may not be everyone's opinion that what is termed a "true-to-nature" photograph is most pleasing to the eye, but a brief discussion of the matter is interesting, and in the writer's opinion throws some light on the reason why some photographs seem unnatural and perhaps displeasing. During last year the Department of Scientific and Industrial Research published a translation of Dr. Gleichen's Theory of Modern Optical Instruments. In this book, among many other matters which it will repay the thoughtful photographer to study, is a discussion on the conditions which are essential to the theoretical "true-to-nature" photograph. It is the object of this article to present these conditions in a form which can be easily "understanded by the people," and to make some comments thereon.

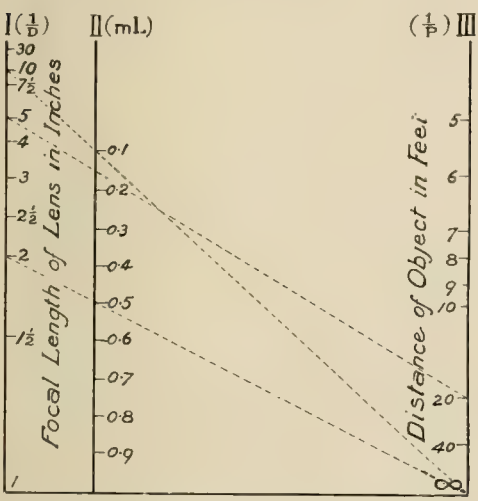
Now, Dr. Gleichen's definition of a true-to-nature photograph is one which, when viewed at a certain determined distance from the eye, will impress upon the retina an image in all respects as to size and definition in all planes, similar to the image produced upon the retina by direct vision of the object photographed. Dr. Gleichen states that two conditions must be observed, viz.:

The entrance pupil of the objective must be equal in size to the entrance pupil of the eye. Without involving any considerable error, we may substitute for entrance pupil of the objective the diaphragm or stop of the lens, and for entrance pupil of the eye the actual size of the pupil. Now, the diameter of the pupil of the eye varies according to the light from three to eight millimeters, consequently the diaphragm of the lens should be about one-fifth inch in diameter. No doubt it is to this condition that the artistic photographer will take exception.

The other condition is: The equation $D = \frac{P}{B} + mL$ must be satisfied, where, D is the power of the lens or reciprocal of its focal length; P is the reciprocal of the distance of the principal object of interest from the lens; L is the reciprocal of the distance at which the photograph must be held from the eye; m is the magnification to which the photograph may have been enlarged; and B is the lateral magnification at the entrance and exit pupils of the objective,

which, since most lenses are symmetrical, will be taken as unity. Hence the equation reduces to this form: $D = mL + P$. It must be observed here that of course the same units of length must be employed throughout the equation.

This result at which Dr. Gleichen arrived may be presented in a form ready for instant solution by means of the annexed diagram,



which links up the variables D, mL, and P. This diagram consists fo three parallel lines, I, II and III. On line I is marked the focal length of the lens. Line II is marked in divisions giving values of mL, or the product of the enlargement and the reciprocal of the distance which the finished photograph is to be held from the eye. Line III is marked with the reciprocal of P, or the distance of the principal object from the camera.

The use of this diagram is simplicity itself. A ruler laid across the three lines will cut each line at the precise value of the variable to satisfy the aforesaid condition. For example: A distant landscape is photographed with a lens of ten inches focus. The line connecting ten inches on line I with the infinity mark on line III cuts line II at a value of 0.1.

Now for the normal eye 1/L may be taken as ten inches, the distance of distinct vision. Therefore m equals 1, and the photograph, if not enlarged, must be held about ten inches from the eye.

Again, a photograph of a distant object is taken with a lens of two inches focus. The line in this case gives a value of mL of 0.5. If this photograph is enlarged one hundred diameters on a screen $100 \times L = 0.5$, or $L = 1/200$, and the observer must be two hundred inches, or, say, seventeen feet from the screen. If the enlargement be two hundred diameters, the observer would have to be thirty-three feet from the screen.

For a third and last example: An object twenty feet away is photographed by a lens of five inches focus. Here mL is 0.15, and it is seen that if m be taken as unity $L = 0.15$, and the eye must be held seven inches from the photograph, or better, the photograph should be enlarged two diameters and held fourteen inches away. It is interesting to observe that the diagram confirms the old rule that a photograph of a distant object should be viewed at a distance from the eye, equal to the focal length of the lens with which it was taken.—Harvey Collingridge, B. Sc., in *British Journal of Photography*.

Photographs On Glass

W. Browne, writing in *The Amateur Photographer* says: The lantern slide is the most familiar form of a photograph on a glass plate. Some excellent work has also been done at times in the way of transparencies on a larger scale, backed up with groundglass, to be viewed by transmitted light These have sometimes been produced in the pure blacks and grays resulting from the development of a slow fine-grain plate with amidol or other clean working developer; at other times the image has been toned to a brown or blue, or advantage has been taken of the fine quality and varied range of colors provided by carbon transparency tissue. When skillfully made, such transparencies possess a richness, purity, and brilliance transcending anything that can be produced by any process on paper.

There is a variation of this method that is seldom employed, but which has been used occasionally with conspicuous success. This is the making of a transparency that is not to be viewed by transmitted light, but to be backed up so as to be seen by reflected light. It thus has the appearance of a print under glass, but if properly done has a quality that is quite distinctive.

One method of doing this is simply to make a positive on a slow plate. It must be developed with a reagent that gives a clean soft image, free from all trace of stain or fog. The image must be very much thinner and more delicate than in the case of a

lantern slide or ordinary transparency, because it will be illuminated only by such light as will be reflected from the paper with which it is afterwards backed up. It is in getting this clean, delicate image, with proper graduation, that any difficulty which the process may be found to possess for the inexperienced is likely to be met with; and the exact quality which is required to give the best result can be found only by experiment.

What are to be the highest lights in the subject must be represented by absolutely clear glass, and if there is any suspicion of veiling in these parts, an application of the ferricyanide and hypo reducer may put matters right. This is fresh hypo solution of about the strength used for fixing prints, with enough potassium ferricyanide added to make it a lemon color. Care must be taken not to carry the action too far, or it will have the fatal effect of attacking the delicate halftones. Therefore the plate should be removed just before the necessary clearing is quite accomplished, and quickly and thoroughly rinsed under the tap. This is succeeded by a thorough washing.

As the transparency is to be viewed from the glass side, the subject will appear reversed from right to left if it is made by contact. This may be no disadvantage, and in some cases may be an improvement; but when it is not desirable, the transparency can be made in the enlarger with the negative reversed. This method has the further advantage of permitting the transparency to be made the same size, or larger or smaller as desired. If the transparency is to appear as a mounted picture, a cut-out mount must be used. The plate is laid film upwards on the back of the mount, and attached to it by means of gummed strips round the edges. If the picture is to be framed close up, the plate is simply laid in the rebate of the frame.

In both cases, the next step to be taken is to attach the backing paper by one edge only to the transparency, and to force it into perfect contact all over by means of a pad of several thicknesses of paper. Unless there is perfect contact the definition will suffer.

A fairly smooth backing paper will generally give the best results, but almost any paper will answer. The contact is improved and mantained by the pressure of the backboard when it is bradded into the frame in the usual manner.

As a variation from making the transparency on a dry plate, it may be produced by the carbon process, using the special transparency tissue, and taking care not to overprint, but to secure a clean and delicate image. Or a soft print may be made on Kodak Transferotype paper, which is afterwards transferred to a piece of clean glass. The main factor in obtaining a successful result is the exactly appropriate quality of the transparency, and, on the whole, there is nothing better for the purpose than a dry plate of fine grain.

The fine gradation which is obtainable, and the special quality of the silver image, will be found to produce together an effect which is almost impossible of achievement in a print upon paper. [N. B. It is quite possible to use, as a backing, gelatinized paper, brought in contact under water;—or white pigment in a varnish, such as Jap-a-lac.—H. D'A. P.]

The Density of Negative Fog

The old idea that a negative must have a certain amount of clear glass is held by few printers now, but it is an undoubted fact that with a negative that is at all inclined to be on the thin side, a very slight amount of fog reduces the printing value in a marked degree. It also gives a false impression of the real contrast present and prevents proper judgment of exposure when bromide or other development papers are used. It is an instructive experiment to reduce with ferricyanide and hypo one-half of a foggy negative until the shadows are fairly clear, when it will usually be found that although the image, plus fog, appears fairly vigorous, yet, minus fog, it is really quite weak. It is therefore evident, when a negative clouds over in development more than it should do, that the development should be prolonged until considerable density is obtained; then when the fog is removed what is practically a normal negative will be left. If any one suffers from this class of negative, it is advisable that all precautions should be taken to avoid all possible causes of veiling. A very common one is diffused light in the camera; this may be through insufficient shading of the lens, to a dusty or cloudy condition of the glasses, or even to reflection from imperfect blacking of the bellows or woodwork. It is a curious fact that in the wet collodion era, when there was

much less liability to fogging, photographers were very careful as to shading the lens with long hoods, cones, or canopies, while now we may find people using rapid anastigmats with half-inch hoods or none at all, and this with ultra-rapid plates. The point should receive especial attention at the hands of those who go in for "fancy" lighting, with the lens pointing more or less directly to the light. With dirty lenses the remedy is obvious: a little alcohol and a soft rag are all that is needed, although a coating of dead black or even black velvet inside the lens tube, is a valuable addition, while treatment with a really dead blacking such as nigrogene on the bellows and framework should complete the cure. If the fogging occurs in the camera the edges of the plate where protected by the rebate should be clear, otherwise the cause must be sought in the darkroom. Colored fabrics fade and some red glasses permit a considerable proportion of blue light to pass through. It is worth taking a little trouble in tracing the cause of fog in order to secure clean, easily printed negatives.—*British Journal of photography.*

Some Uses For Blue Prints

J. M. C. Grove, writing in *The Amateur Photographer,* says: Blue or ferro-prussiate prints are, as a rule, despised for their color, but I hope to show that they can be turned to good account, apart from their utility for draughtsmen and engineers, etc. The paper for making blue prints can be prepared in ten minutes. The outlay of a few cents will provide enough solution to last for many months. Beyond this there is no expense, except for the paper: and even for this, use may be made of the backs of waste prints or other odd pieces of good paper.

In case there are any readers who do not know how to prepare blue-print paper, it will be as well to give the few simple directions necessary:

A: Ferric ammonium citrate (green) ..... 220 grains
Water ..... 2 ounces
B: Potassium ferricyanide .. 80 grains
Water ..... 2 ounces

Mix, and keep in an opaque bottle or in the dark. The solution will keep many months. For use, spread a little on paper with a tuft of cotton-wool or a brush, and dry near the fire in a dim light. Print under a negative by daylight until the image is quite clearly seen, and finish by soaking in two or three changes of clean water for about five minutes. A trial exposure will speedily indicate the correct depth of printing. The coated paper will keep for four or five days, or even more.

Among the uses to which these prints may be put are the following: The first is for making trial prints from new negatives. When there is any doubt as to whether a negative is worth printing from to print on any commercial paper involves a certain amount of expenditure, small though it may be, which many times repeated, amounts in the end to something substantial: whereas a blue print costs practically nothing.

It is not always easy to judge from a blue print what one in black and white will be like; but it is possible in a very simple way to turn it into one nearly black and white, from which a better estimate may be formed. To accomplish this end, all that is necessary is, on removing the print from the printing frame, is to treat it to a "dish of tea" by immersing it in this liquid and weighting it down at the corners. The remains of the domestic tea-pot after breakfast or afternoon tea will meet the case.

The print is kept in this bath until sufficient of the blue has been removed, or it may first be developed in water and treated with the tea bath afterwards at any time. If the first course is adopted, the printing need not be carried so far, as there is less reduction in the tea bath than in the plain water.

The print is then rinsed in clean water, or sponged with cotton-wool, and dried. The time of immersion in the tea bath depends on the depth of the print and the strength of the tea. It may take twelve hours or more. A shorter soaking in tea will leave the blue print richer in tone and with the white paper agreeably colored. If this effect is liked, a slight rinse only should be given.

I am aware that there is a regular way of toning blue prints, but it involves the use of several chemicals which have to be purchased, and may turn out to have gone bad just when required; and, after all, I believe it is not a very satisfactory method. The tannin used for the purpose may be obtained from the tea-pot for nothing, as above described.

If the print, after the tea bath, is soaked for a short time in a weak solution of wash-

ing soda, it will turn a brown or red color, according to the time of immersion and strength of the soda bath.

Another purpose to which a blue print may be put is also a very useful one. I find that if I put a piece of gum-bichromate paper, prepared according to my usual formula, and a piece of blue paper, to print under negatives of similar density, they are finished substantially at the same time. This fact is a great advantage, especially when making gum-bichromate prints in black, as the image in that case is almost, if not entirely, invisible. It renders unnecessary the employment of an actinometer, which instrument has the drawback of having to be kept supplied with printing-out paper, which has to be bought and does not keep very well; besides, trials must first be made to ascertain the actinometer number. No doubt different makes of gum-bichromate paper have different printing speeds according to the proportions of the ingredients, but a trial or two would establish a relation.

There are many people who have a certain notion of sketching, but who are not good enough at it to draw from nature. For these there is an application of photography that makes a pleasant occupation for the evening or for any other time of leisure. It provides the skeleton of the picture, thus doing away with many of the difficulties felt by those whose knowledge of drawing is limited, and leaves to them the filling in of details, shading, etc., and also serves as a guide for the completion of the whole. By this means they are enabled to produce sketches which would be quite beyond their skill in the ordinary way.

The process consists of drawing over a photograph, in pencil or ink, and then bleaching out the photographic image so that nothing but the drawing remains. There is, of course, nothing new in the idea, but there are various ways of carrying it out; and the way I am about to describe has advantages which, to my mind, make it preferable to any other. The usual course is to make use of a bromide print, but there are several drawbacks to this plan. One is that bromide paper is not, as a rule, suitable for drawing on, owing to its being coated with gelatine. In addition to this, it is at any time rather expensive, and at present is more so than usual. As a good many attempts are likely to prove unsuccessful, the bill for paper is likely to bear an undue proportion to the results achieved. Also there are chemicals to be purchased to make up the bleacher. These may not amount to much, but still they are always something added to the bill.

The plan I am going to describe gets over all these objections. It is to use a blue print, which can be prepared on any suitable paper, as described above.

After the print has been washed and dried, it is ready for drawing upon. This may be done as pleases the worker, either with a pencil, or pen and ink, or brush and ink. When the drawing is completed and (if in ink) dried, it is ready for bleaching. This is done by placing it in a dish of water in which a pinch or two of washing soda has been dissolved. In a few minutes the blue print has disappeared, and nothing but the drawing remains.

If the drawing is in ink, and the soda bath has had several prints bleached in it, when a print is removed it is generally of a very pleasing sepia tint; but if the soda bath has almost or entirely been unused, then there is but little change in color. After a rinse in fresh water to get rid of the soda, the sketch should be mopped with blotting paper and laid level to dry. A waterproof ink can be used if ordinary India ink shows too great a tendency to "run".

After bleaching, it is generally necessary to do some retouching, and if the ink should have turned to a sepia color, fresh ink applied will not match. This difficulty, however, may be got over by giving the retouched sketch another turn in the soda bath, or a little of the latter may be mixed with ink used for retouching, or India ink may be used.

At the present time, the green ammonium citrate is obtainable with difficulty or not at all, but there is another kind, the brown, which is obtainable, and which can be made to serve until the present time of scarcity has passed away. It does not keep so well in solution as the green variety, and it is not so easy, with it, to watch the progress of the printing. These, however, are minor difficulties, which may be got over with a little practice. If the sensitizing solution be fresh, and the exposure approximately correct, the print will be quite as good as one made with the green crystals.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Learning Something Worth While

How many workers can safely say their developer, the temperature at which it is used, the length of time required, and the exposure of the paper has all been such as to give the best possible print, even from a normally good negative, not to mention the variations encountered in the latter? And how many know, really know, what a good normal negative looks like? And how often is a good looking negative deceptive? I have seen a pyro negative that looked quite thin, its good quality being due to its amber color, hardly distinguishable except by comparison; and I have seen a good blue-toned negative that looked so dense that it seemed hopeless. Both were good negatives, but not good looking ones, and conversely, many good looking negatives are far from being good. And there is where the trouble comes in. One will make a print that is disappointing and think the trouble lies in the developer or the exposure; when, perhaps, both were all that could be desired. To really find out, one should go about it in a practical manner. Make a test negative by pasting strips of tissue paper on a piece of glass in such a way that a strip through the center as made up of sections, say twelve in number, ranging from clear glass at one end through one, two, three and so on, thicknesses of the paper to eleven thicknesses at the other. Block off all except this gradated strip through the center, with a black paper mask. Then use this negative with strips of gaslight paper behind, for a series of experiments, the effort being to find what developer, temperature, time of development and length of exposure will give the longest and most even reproduction of these various steps of density. Once that is found, the worker knows just what he is doing. He knows the proper procedure for the best possible results. When he follows that procedure he knows he is getting the best print obtainable within the limits of his trials. If he wants to modify any of the factors to compensate for variations in the negative, he can do so in the light of his experiments. If his negative is thin and he wishes to compensate therefor, he has but to use the method from his experiments that gave him the best results on the thin end of his scale. And so on through the list. A few minutes spent in making such a test negative and an evening's work with a few sheets of paper cut into the proper strips, will teach him more about the proper procedure than months of regular work with various negatives and a developer that he does not know much about as to its suitability.

Enlarged Negatives Direct

A correspondent in Pennsylvania has written to ask concerning a process, credited, he believes, to an M. Balagny, some ten or twelve years ago, for producing enlarged negatives without making the intervening positive, necessitating an extra plate being used. Looking the matter up we find that Mr. Parr, a member of the Birmingham Photographic Society, gave the method in the *Journal*, saying that he had used it with complete success both for plates and paper negatives. His instructions read as follows:

The original negative is enlarged on to an ordinary slow plate and developed with:

Amidol	15 grains
Sodium sulphite	80 grains
Ammonium bromide, 10 per cent	2 drams
Potassium metabisulphite	5 grains
Water	5 ounces

Development being stopped when the image shows through at the back of the plate. Assuming a good positive has been obtained, it is washed for five minutes, backed with a piece of wet black paper to prevent halation, and exposed to daylight for thirty seconds, or six inches of magnesium ribbon is burned six inches from the plate. All subsequent operations are conducted in the dark-room,

in a good yellow light. After exposure the plate is bleached in:

Potassium bichromate ....75 grains
Nitric acid .....30 minims
Water ..... 5 ounces

and after action is complete, immerse in:

Sodium sulphite ..... 1 ounce
Potassium metabisulphite..15 grains
Water ..... 5 ounces

This will clear the bichromate stain from the film in about five minutes when the plate is well washed and redeveloped in:

Amidol .....15 grains
Sodium sulphite .....80 grains
Potassium metabisulphite..15 grains
Water ..... 5 ounces

until the image is black enough, and finally it is fixed and washed in the usual way. The worker wishing to try out this process will notice that the last formula is the same as the first, except that the metabisulphite is tripled and the potassium solution left out, and he will further observe that the formula for the clearing solution is the same as that for the re-developer, except that the sodium sulphite is increased and the amidol left out. This should make the preparation of the several solutions a quite simple matter.

Ink For Photographic Copies

Drawings, writing and the like, intended for copying by photography, are sometimes disappointing when made with the usual writing fluid intended for general use, due to the rather blue color. This is particularly the case when an attempt is made to copy such work within a few days of its production; allowing the passage of time and much better results are achieved as the color gradually becomes less blue. If such work is to be copied at once, it would be better to get from the dealer in artists' material a bottle of what is called "process black", a liquid India ink made for the use of photo-engravers. This ink has one disadvantage, it does not flow from the pen as nicely as does the ordinary kind. Almost as effective an ink can be made by adding a slight amount of red ink to the common black writing ink, just enough to overcome the blue tone.

Trimming Stereoscopic Pictures

The main thing, we would advise our Illinois correspondent, is to see that the two prints are transposed, that their base lines are straight and alike, and that the most distant objects in the two members are between two and five-eighths and two and three-quarters inches apart. If made with a stereoscopic camera, nothing else really matters very much, as far as the stereoscopic effect is concerned. Our correspondent must be reminded, however, that exaggerated perspective, as well as lack of sufficient perspective, is due, not to wrong trimming, but to wrong separation of the lenses for the particular subject in hand. For near objects the lenses should be brought closer together and for distant ones the separation should be increased. The moral is, use your ordinary stereo camera with its lenses fixed permanently at a certain distance from each other, for only ordinary subjects. If you wish to make "close-ups" of still-life subjects or bird's-eye views of distant landscapes, make two exposures with a single lens camera, shifting the latter's position only a trifle in the first case and shifting it several feet in case of the distant views.

Quick Carbon Sensitizer

In reply to our New Hampshire correspondent, a local worker has good success with the following procedure: Using hot water, a ten per cent solution of either potassium or ammonium bichromate is made up, allowed to cool, and then filtered, an ounce and a half of pure acetone being added to each ounce of the solution. The tissue is pinned down by its corners, a little of the sensitizer poured on and quickly spread over the surface with a broad camel's hair brush, the brushing being continued across in both directions until there is a slight tendency of the brush to stick. Put aside in the dark to dry, the sensitizer is ready for use in about fifteen minutes. With the potassium bichromate, crystals will be thrown down upon addition of the acetone, but these will be filtered out and no harm results.

Sizing For Kallitype

The sizing solution is made by taking two grains of arrowroot to every ounce required to make enough for immersing the sheets of paper. The arrowroot is first rubbed up to make a stiff paste with a little cold water and then the remainder of the water added in a boiling condition. This results in a transparent sizing in which the paper should be immersed for two or three minutes, finally being hung up to dry.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

President Hinman's Invitation

I am getting settled in my new quarters and will be glad to meet any of the I. P. A. members who may pass this way on their vacation over the famous Denver's Mountain Parks Highway to any of the parks or auto camps situate thereon. The new place, called "Sunnyside," is situate opposite the Cub Creek bridge at Evergreen, Colorado. The coming winter I will fit up a dark-room and once more get into photography. Will always be glad to hear from any of my old friends, as letters will be welcome during the winter months when the travel is not so heavy.

Officers of the I. P. A.

F. B. Hinman, President, Evergreen, Jefferson County, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Claus Spreckels Building, San Francisco.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

John Bieseman, Director Post Card Division, Hemlock, Ohio.

James B. Warner, Director Stereoscopic Division, 413-415 Claus Spreckels Building, San Francisco.

A. E. Davies, Director Western Lantern Slide Division, 1327 Grove St, Berkeley, Cal.

Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4632—J. H. Hans, 601 East 8th St., Kansas City, Mo.
Under 8x10, various papers, of miscellaneous and nudes; for nudes and comics. Prints only. Class 1.

4633—A. E. Hindle, 277 Willows Lane, Bolton, England. Class 2.

4634—Chas. N. Fenton, 203 Copster Hill Road, Oldham, England.
3¼x4¼, various papers, of landscapes, views, and general subjects; for landscapes, marine and portrait studies. Class 1.

4635—R. H. Collins, General Delivery, Cisco, Texas.
Class 2.

4636—Richard Millar, 600 Washington Blvd., Chicago, Ill.
Any size, various papers, of miscellaneous subjects; for the same. Class 1.

4637—H. W. Young, 3011 Heath Ave., Kingsbridge, N. Y.
Not able to exchange at present, but would appreciate correspondence with members on landscape, sky and flower photography. Class 2.

4638—W. Howard Frederick, P. O. Box 163, Martins Ferry, Ohio.
3¼x5½, developing papers, of woodland scenes, Eastern cities, war pictures and miscellaneous; for nudes, draped and undraped pretty girls (low bust preferred), swimming girls, ocean and mountain scenes of California; also views of Mexico and Cuba. Class 1.

4639—Linn Ricketts, Box 14, Mason, Nev. Class 2.

4640—Jay F. Steves, Box 5, Troy, Kansas.
3¼x5½, 4x5, and smaller, various developing papers, of general out-door scenes and action pictures of games, etc.; for anything of interest and artistic. Class 1.

4641—E. Cedric Marshall, 70 Goddard Ave., Hull, England.
3¼x4¼, 4¼x6½ and 6½x8½, various papers, of child studies, river and country scenes, boating scenes, etc.; for animals, nature studies, figure and bathing studies. Good work only sent and received. Class 1.

4642—William Baker, Box 152, Parsons, W. Va.
3¼x5½ and 5x7, developing papers, of mountain scenery, portraits and miscellaneous; for mountain scenery, nude and miscellaneous. Class 1.

RENEWALS

3930—Hugh L. Mangum, P. O. Drawer A, East Radford, Va.
3¼x5½, developing papers, of mountain and river views; for views and a few nudes and draped for pictures of same class. Will not exchange nudes for views. No post cards. Class 1.

4049—Robert S. Blatchford, care F. A. H. Mail Box, Datil, N. M.
Class 2.

4633—Albert E. Hindle, 277 Willows Lane, Bolton, England.
2¼x3¼ and 3¼x4¼, various papers, of genre, portraits, landscapes and seaside views; for the same. Class 1.

CHANGES OF ADDRESS

3027—C. F. Small, 40 Grand Ave. N., Portland, Or.
(Was 361 Hassalo St.)

3317—Dr. Percy Neymann, 1273 Filbert St., San Francisco, Cal.
(Was 123 Hooper St.)

3958—Orrin Dudley, 211 E St., San Rafael, Cal.
(Was San Anselmo, Cal.)

4233—Harold Sherer, R. F. D. No. 2, East Canton, Ohio.
(Was Osnaburg, Ohio.)

4495—John J. Spielberger, Jr., Sour Lake, Texas.
(Was Vinton, La.)

4391—Geared L. Cole, care R. E. Jenks, Scranton, Iowa.
(Was Carroll, Iowa.)

4552—M. B. Aftergut, 25 Kearny St., San Francisco, Cal.
(Was 833 Market St.)

4584—Paul T. Bjork, 1511 3rd Ave. W., Spokane, Wash.
(Was Ringling, Mon.)

4603—S. T. Parnell, 1866 20th St., Ensley, Ala.
(Was Tuskegee Institute, Ala.)

CLUB NEWS AND NOTES

Columbia Photographic Society

The Memorial Day Outing of this enthusiastic body of Philadelphia amateurs was a great success, thirty-one members enjoying the supper that closed the event. The quarterly print contest and exhibition was held June thirtieth with a most gratifying attendance to view the fine prints shown. While there will be no scheduled events during the summer months, the members visit the rooms quite regularly in order to enjoy the general discussions that seem always in progress.

Newark Camera Club

A most enjoyable outing, one of the most successful the Club ever had, was held on the afternoon of June eighth, thirty-four of the members embarking in seven automobiles, bound for Newfoundland. Monday evenings during July were devoted to regular meetings, and the "get-together" gatherings so popular with the members. The Club Contest Committee announced a series of monthly competitions, the subjects being as follows: September, flowers; October, genre; November, marines; December, still life; January, landscapes; February, portraits, and March, general. It is believed that this plan will add to the interest by giving the members an opportunity of making negatives for a number of the contests instead of depending upon what they may have on hand.

Portland Camera Club

This organization of Maine amateurs has enjoyed a marked revival of interest on the part of its members during the early and midsummer months; quite a few new members having joined and old members are attending the weekly meetings as never before. The Slide Committee is busy making new slides and expects to turn out at least two hundred in addition to the fifty that will be entered in the competition to be held by the Newark Club. These have nothing to do with the Club's "Rogue's Gallery" set, made up during the year from negatives that the individual members are always on the alert to snap when he finds some other member in a funny or unusual situation during one of the many Club outings. These are kept secret, turned over to the Slide Committee, and the resultant slides are shown at the annual outing held every January in a cottage used for quarters during the visit. The set is always a success and it is surprising how many extremely funny scenes can be caught during the year. The summer exhibition on the Club walls is an excellent one, made up of one picture from each member contributing, each having the privilege of changing his picture when he so desires, a plan that works out very satisfactorily.

OUR BOOK SHELVES

"Alaska, Our Beautiful Northland of Opportunity"

This, the latest of the "See America First" Series, is a worthy companion to the excellent volumes already published. The author, Agnes Rush Burr, presents, in this volume, that not too common combination of a charming style and authenticity, the result of capability combined with conscientiousness. The subject is interesting and the treatment has made it doubly so to the reader who cannot himself see the country. To the one intending an Alaskan trip, the information given is both timely and valuable. Alaska's romantic history, its industries and its activities, its agriculture, its natives, its transportation, its government, its business opportunities; these, and many other topics are treated with a comprehensive directness that is as convincing as it is informative and gratifying. The volume is a handsome one, cloth decorated, with a map and a wealth of full page illustrations in color and duogravure. Published by The Page Company, 53 Beacon Street, Boston, Massachusetts. Price four dollars net.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

A. C. Henline and family of Klamath Falls, were in San Francisco the latter part of June.

L. Fink of Bushnell's, Portland, spent a few days in San Francisco, passing through with Elmore Grove of the same city.

The "Sunny Southland" had the pleasure of Norman Siller's presence during his vacation. Lizzie was along.

Lyle Rennick of Hartsook's, also went to Los Angeles for his vacation.

Sam Hill is still on the "Big Ranch."

Doc Merriman recently fluttered into town from Santa Rosa.

Miss Charlotte Lawrence of Hartsook's was recently presented with a gold wrist watch by her co-workers.

Geo. Novak has excellent eyesight, notwithstanding his age.

The Gradys, formerly of the Hartsook Studios, have opened a very fine studio in the Frederick Nelson Building, Seattle. They extend a welcome to any of their old friends who might be in the Northwest. We wish Mose and Anna all good fortune in their business venture.

Your correspondent has just returned from an Eastern trip in the interest of Probus Paint and Oil Colors.

Mr. Mandeville the artist at the Palace Hotel, spent a few days in Redwood City recently.

Mr. James Returns

H. James, the well known artist to the trade, is back in San Francisco after his holiday in Honolulu, Samoa Islands and Australia. Particularly in Sydney, Mr. James met with the greatest kindness and hospitality, the trip throughout being enjoyable and financially successful. During his short stay there, a number of pictures were painted for leading Sydney firms, and he brought back many handsome orders for work, principally for miniatures on ivory. Many fine views were taken en route and these he will reproduce in color and shortly place on the market. Mr. James' color work is so well known and so generally admired that we are confident of seeing something really artistic in these new pictures in the near future.

An Excellent Developer

Discriminating workers should welcome the establishment in this country of a branch house of the well known firm of Johnson & Sons, London, manufacturers of the popular "Scales Brand" of photographic chemicals. As manufacturing chemists, this firm is one of the largest and oldest in the British Isles, while the "Metol-Johnson" put out by them enjoys a sale that forecasts a heavy demand in this country as soon as its merits become known. A small advertisement, quoting prices, appears in our advertising section and we would alvise those who are not satisfied with the metol and metol substitutes they have tried, to give Metol-Johnson the attention which its popularity abroad and the standing of its manufacturers should entitle it. Possibly your dealer does not as yet stock it, but an inquiry or two may induce him to do so, particularly should he have a knowledge of the scope and standing of the firm behind it. We have no doubt but what an order, addressed directly to the New York branch, 115 Nassau Street, and enclosing one dollar and sixty-five cents, will be given prompt attention and an ounce sent by return mail.

Motion Picture Work

Those desirous of taking up motion picture work can hardly do better than avail themselves of the offer being made by the New York Camera Exchange in their half page advertisement in another part of this magazine. These cameras were bought at a bargain, of a firm engaged in other business, and they are rapidly being closed out at a bargain price. They are thoroughly practi-

cal and at the price offered they enable one to take up motion picture work at a cost much below that involved in the purchase of the high priced and complicated equipments used by the large producers who must be able to meet every requirement. Look up the advertisement and order one of these cameras before thy are all sold.

New Bargain List

A sixty-four page catalogue of bargains in used photographic apparatus and of general photographic supplies has just been gotten out by the Bass Camera Company. It is different from the general run of catalogues and a copy will be gladly sent upon request made to Department K, of the above firm, whose address is 109 North Dearborn Street, Chicago, Illinois.

Illinois College of Photography

Professor D. J. Cook seems to be a favorite in the city schools, as well as with us, for he has just been re-elected as president of the Effingham Board of Education.

Mrs. Helene Marcellus no doubt feels repaid in more ways than one for making the long trip from The Hague, Holland to Effingham; for it was here that she met Mr. Marcellus. The College received a pleasant call from them recently. Mrs. Marcellus will be better remembered as Miss Blankevoort.

During the "Month of Brides" Cupid is always overworked. F. C. Lee of Chicago, who was with us several years ago in the photo-engraving department, is this time the "Young Lochinvar." The young lady is Miss Myrtle Levitt of Effingham. The couple will reside in Chicago, where Mr. Lee is employed in an engraving establishment.

We are in receipt of a very interesting letter from Reverend Ira N. Faurot, pastor of the Methodist Episcopal Church in Marysville, Kansas. Mr. Faurot was with us in 1905, as a student in photography. He is making use of his knowledge of the art in connection with his ministerial work.

Motion Picture Supplement

Some very informative "Hints on Making Motion Pictures" are incorporated in this neat little list of new and used motion picture apparatus gotten out by the Bass Camera Company, Department 27, 109 North Dearborn Street, Chicago, Illinois. Portable projectors, studio arc lights and other apparatus is included and such of our readers as are interested should send for a copy of this supplement which costs only the trouble of a request.

"American Pictorial Photography, 1920"

The Pictorial Photographers of America propose to publish their first volume of reproductions of selected examples of the work of American pictorial photographers about November first. The intention is to make this book in no respect inferior to "Photograms of the Year," and an announcement has been gotten out to invite co-operation in the work, on the part of all photographers. Prints submitted should be sent, at once, to Editorial Board, P. P. A., 122 East Seventeenth Street, New York. The book, the announcement advises, will be about 8x11 inches in size, will contain about a hundred large, full-page plates, together with about thirty-two pages of text dealing with the progress of pictorial photography in this country during the current year. It will be printed on fine, coated paper and attractively bound in boards. The price will be two dollars and fifty cents and orders should be sent to the sales agents, Tennant & Ward, 103 Park Avenue, New York.

A Meritorious Utility

The advertisement of the Specro-Focus-Hood on another page, should appeal to all photographers using the old fashioned annoyance known as a focusing cloth. It is claimed that, with this device, quickly attached to any camera, the photographer sees an enlarged image on the ground-glass and can focus in a fractional part of the time necessary and without any of the annoyance attending the use of the focusing cloth. If desired the part containing the lens can be lifted up, the work of a second, gives one the image natural size or unenlarged; and the lens can just as quickly be returned to its normal position. The importance of this will be easily understood by the portrait photographer, particularly in the case of children or nervous people, and the view photographer need no reminder of the inconvenience of the focusing cloth, particularly in windy weather or where the light is poor. The Specro-Focus-Hood saves time, saves annoyance, and saves the eyes. It is manufactured by the Artograph Screen Company of 500 Fifth Avenue, New York City.

XXVI No. 9 SEPTEMBER, 1919 Price, 10 Cents

CAMERA CRAFT

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REVISED LIST PRICES, EFFECTIVE JUNE 26, 1919

One-pound container - - - -	**$20.00**
Half-pound container - - -	**10.10**
Quarter-pound container - -	**5.10**
One-ounce container - - - -	**1.35**

ANSCO COMPANY, Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

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Continued on Next Page

CHARLES F. LUMMIS AT HOME
By LOUIS FLECKENSTEIN

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

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Painting and Photography

By W. C. Sawyer

With Illustrations by the Author

The relation between painting and photography and the relative status of the two mediums, if you will allow the term medium for photography, have always presented more or less cause for friction. Many photographers have felt that their work was depreciated through a spirit of jealousy or haughtiness on the part of artists of the brush and pencil. Those who have been through the long years of preparation for art work, who have acquired knowledge that seems at times almost limitless and yet who are constantly realizing that the things yet to be mastered are really infinite in number; such, when they see a photographer grab up his camera and press a little spring release, may be pardoned in feeling that the process is purely mechanical.

On the other hand, how would the artist feel if he had, on three different occasions, packed a twenty-pound camera outfit for ten miles, through the brush of the foothills, exposed several plates on the few subjects which seemed to promise a composition, only to feel that he must return when there was a little different lighting? If, then, he had further waited until winter and exposed for clouds on several different days, finally selecting one that would, by double printing, complete his one artistic result. Suppose then he expends two evenings and a dozen sheets of 11x14 bromide and produced the best picture he had ever made. Then again, suppose he sends it to a so-called salon and a long-haired artist and a se-seedy-er throw it aside and select, as more original, a fuzzy picture of a pile of tooth picks, greatly enlarged and seemingly ready to fall out of the lower corner of the picture. Now, dear fellow photographer, suppose you see

an artist acquaintance seize a piece of wrapping paper from the last loaf of bread, borrow the kid's school pencil, sketch in ten minutes, from the back porch, the old ramshackle barn and manure heap, label it "His First Cigar," fold it carelessly and mail it to a prominent publisher with a bill for fifty bucks; now, dear reader, if you are a camera pictorialist, what would you say?

Pardon this long introduction, but it is from the heart. Now to the point.

The relation between color combinations, contrasts, and compositions, and their representation in monochrome is no doubt a very common cause for misunderstandings. In spite of what you read from the manufacturers of filters and special plates, it is as manifestly impossible to represent a complicated color composition in monochrome as to fly by the mere flapping of the arms. Indeed, it is conceivable that a beautiful composition might be made of several varying shades of different colors, such that in a truthful color value photograph might be represented by a blank gray tint. On the other hand, the colors might be such that the best possible monochrome rendering would so misrepresent the different contrasts that the picture would be absolutely unbalanced or the principle point of interest obscured, and some minor, uninteresting feature so exaggerated as to present an effect that offends an artistic temperament as does a horrible discord on a musical instrument.

Let us go a step farther and suppose that the student-reader, by reason of his diligence in study, should be placed at the head of a jury of selection for an important exhibition. When the other members of that jury disagree with him, is it unreasonable to expect that he will believe that they are ruled by their ignorance of the subject? Can you not imagine him saying; "Well, if you are right, then so-and-so, the great critic is a liar."

A SUNSET SKY—LOS ANGELES By W. C. SAWYER

"HOW LIKE A RING OF SMOKE" By W. C. SAWYER

Have you not looked over a bunch of prints, exhibited by some enthusiast, and wondered, after deep pondering, how he could possibly have had the nerve to put forth such trash? Do you not believe it probable that he had been spending hours at the library, studying the carbon and photogravure reproductions of the works of the great masters and eminent contemporary artists? Possibly he had also been studying the half-tone reproductions in a well known trade publication by "Sydney Australia".

Let me make bold to advance a theory that will meet with almost certain objection. Had we not better tell the beginner to study the work of the little appreciated, but highly paid illustrator in monotone wash, pen and ink, or pencil. Perhaps the first medium is best, as it most nearly corresponds with photography in effect.

We must bear in mind that color subjects comprise three elements of contrast and composition: color contrast and harmony, shade contrast, and texture or technique. Photographs depend on only the latter two; and indeed, more largely on only variations in shade. Therefore, a photographic reproduction of nature, or of a picture in colors, is at best but a compromise.

When an art critic writes an analysis of some beautiful color study, one

that depends largely on its color rhythm for its beauty, and illustrates his article with an unsatisfactory monotone reproduction and presents it to a miscellaneous group of readers, is it to be wondered at that those with artistic feeling pronounce both the artist and the critic humbugs? Again, is it strange that the reader who is sincere, but not over-endowed with artistic tastes, and perhaps rather shallow in perception, is led far afield in his labored attempt to comprehend the rules of composition as advanced by the writers? Suppose the reader, after diligently studying the subject, produces a monstrosity which seems to fulfil all the requirements of the learned critic's written laws, as interpreted by the illustration; is it not a delicate matter to convince him that he should not be honored by a place on the walls of a salon.

PALMS AT SAN FERNANDO MISSION By W. C. SAWYER

Would we not have more popular exhibitions if some of the judges would somewhat curb the imaginary sensations which are created in them by some of the gloomy fuzz and forget the mythical color feeling that the various shades cause them to grope after and supply before their half-closed eyes? The problems may be interesting enough to induce such judges to pass a picture, but not so to the spectator who has no possible way of following through the same maze. Let us rather seek to produce pictures that in themselves contain interest, and better still, human interest.

One reason why a painter whose theories, in his own mind, are absolutely correct and clear, may fail to reach his reader's grasp is that he thinks in color. In a painting, a perfectly clear sky may be given such a strong color as to be exceedingly attractive, while its uninteresting representation in a photograph may have a degree of weight almost nil.

Composition is, it seems to me, largely dependent upon the arrangement

of masses, controlled by contrasts. The photograph depends upon shade and form contrast, while the painting may have color contrasts and color harmony and rhythm. The artist's work, that is, the work of the skilled and original artist, is more often constructive, while that of the photographer is frequently selective. The photographer is also handicapped by his inability to eliminate the superfluous and undesirable.

The same problem of representing color enters into the photographing nature, as in copying from works of art. Some skies, with their clouds, well rendered with an ordinary plate are poorly rendered by an ortho plate and screen. Sometimes the existing contrasts may be reversed by a proper selection of materials and equipment, and thereby a composition saved.

WATCHING OLD OCEAN AT PLAY — By W. C. SAWYER

Let "us artists" look upon the work of one another with a greater degree of charity, feeling confident that if we can only appreciate the real feeling back of our contemporary's creation, there is almost sure to be some quite rational reason for its production. Of course, when, difficult as it may be, we have absolutely proven that the supposed artist is a genuine faker, then we spare ourselves any consideration of his pretensions, reserving our approval for those more worthy, of whom there is an ever-increasing number if we will but look about for them.

Taste, if it mean anything but a paltry connoisseurship, must mean a general susceptibility to truth and nobleness; a sense to discern and a heart to love and reverence all beauty, order, goodness, wheresoever found and in whatsoever form and accompaniment.—CARLYLE.

Being a Club Member

By F. Shirley

The Southern California Camera Club was a going concern before I became a member, although it is only fair to state that conditions were more favorable in the old days. I am now on speaking terms with most of the members, and have never yet been asked to resign by any one in authority. In fact, I expect to retain my membership, undisturbed, for an indefinite period, or at least as long as I continue to maintain a convenient unloading ground where other members may dispose of apparatus that has no value.

I never had a print in a salon; at least, none that I can remember; but every amateur will bear me out when I say that judges are biased and prejudiced. In our own club I have stood helplessly by and watched members of a high-handed print committee take turns in suggesting the lopping off a few inches from the bottom, top, sides and finally the middle of my choicest print. Once in a while, of course, I may make a print that is not quite up to standard in every particular, but my explanations are becoming more and more complex and scientific.

Years ago, I "covered" the first Santa Monica road race. I had not, up to that time, enjoyed much photographic experience, and was still gravely impressed by the term "Instantaneous," and the startling rapidity with which the little shutter blinked at the scenery. I exposed a roll of film as the various racing cars shot by, and later I developed the roll. I had six lines of bleary looking spectators, but nothing that looked like a racing automobile.

Speaking of camera clubs, I would say that the thirst of the new member for information causes me the greatest concern. Anyone who has offspring will know what I am referring to. A tyro with the bent for definite information can cause infinite trouble. Just lately, one of the latter asked me what was meant by the designation P. O. P. Fortunately, I knew that this referred to the price of paper, but the incident will serve to illustrate the point. It would not have been a good recommendation for the camera club, if having been a member as long as I, I could not have answered such an easy question, off-hand.

Developing agents cause me more trouble than book or insurance agents. Why cannot we all agree and be satisfied with one developer, the same as we are with hypo? Let me relate an incident in substantiation.

Last summer I spent my vacation at Bear Lake with an ardent amateur who went loaded for bear. I think it was a full gross of plates that he insisted upon carrying. This may have been laudible under some conditions, but in this case it required a corresponding reduction in spuds, beans, blankets, etc., which, although they, of course, appeal more to the animal side of our nature, are still of considerable importance on a camping trip. Being more mature in judgment, and having learned by my extended reading that the number of exposures made

has nothing particular to do with the making of good pictures, I took a dozen. These I exposed with great care and circumspection, confident of myself at every step, and smiled the smile of conscious superiority at my partner who was so busy exposing on every tree and bunch of grass around the lake.

I exposed twelve plates in two weeks, and then returned to civilization. Unprecipitately, I moved to prepare my twelve masterpieces. Looking over my numerous developers, I decided to try Glycin, this being the only one in sight that had not given me mediocre and unreliable results. This Glycin had been on my shelves for some years. Up to this time I had no experience with this chemical, but it had been warmly recommended to me, and I tanked my plates.

THE SKY AT EVENING — By W. L. JENNINGS

After the passage of forty-five minutes, at forty-five degrees (it will be seen that I am familiar with my subject), I examined the result. Not even a discoloration on any of the plates. Alarmed, I mixed a pyro solution and repeated the anxiety producing process. At the end of another forty-five minutes the plates were developed, and developed in a peculiar and startling manner; about fifty per cent of the film had developed completely off the glass. The remaining portion had developed a system of wrinkles that might have been desirable in a fluter or a washboard, but not striven for in a negative. In short, while I could see what my pictures might have been, there was no hope of seeing any in the form of prints.

Upon examination of the Glycin bottle, I noted that it was made in Germany. Another instance of Hun frightfulness.

Housewives should be regulated in some manner. Time was when I did all my best work,—and other work, in the bath-room. Once I was thus improving the shining hours of a beautiful spring day, and had just completed fixing a fine, crisp negative of an outing party. I inspected the result under the white light and visualized the kopecks that numerous prints would add to my primitive bank account I had visions of customers battling with each other for the opportunity to buy. My soul was at peace, and I began to hum a love ditty. I held the negative under the tap to give it a preliminary rinsing, and,——

The good wife,—though without malice aforethought, I am bound to believe, had lighted the heater in the kitchen, preparatory to engaging in the plebeian occupation of washing clothes. This commendable activity, despite its importance, was indulged in without my knowledge thereof, and ours being a well appointed bath-room, the hot water faucet was most conveniently located. As I proceeded, the tap expectorated explosively a few times and a gush of hot water struck my potential revenue producer square in the face. There was a large inky splash and my prize negative was distributed in solution around the sides of the tub.

And speaking of inky splashes, reminds me of my experience with blackbirds. Birds are alright, but some varieties can prove very annoying to the photographic enthusiast. Take these blackbirds, for instance. Once I had six negatives washing, face up, of course, in a shallow tray on the lawn, while I sat at the window improving my mind in the agreeable perusal of a book. I shortly glanced out to see how went the wash, and there in my tray were three blackbirds bathing in high glee. I shrieked and the marauders departed to some other public plunge. My negatives looked like puzzle pictures.

In conclusion, let me say that I will be glad to furnish private advice, individually, to any one desiring to sample my full and complete stock. Address, care of Southern California Camera Club, enclosing one dollar to cover postage, war tax and other overhead expenses.

Learn the technique of photography well, then use it wisely.

Learn to look at and choose subjects for their simplicity of form.

Then, having learned to see, choose your own material, and deal with it according to your own lights and taste.

Never forget the limitations which necessarily hedge in photographic and other methods of monochrome art.—W. Thomas.

Hence it is that the search in common for certain qualities, constitutes a real school, as distinct from a set of imitators. The Dutchmen tried together for the same things for what has been called a portraiture of nature; for accuracy and subtlety of painting upon an accuracy and subtlety of drawing which serves as a base.—John La Farge.

How I Learned Photography

By John C. Stick

With Illustrations by the Author

Perry and I were chums but a short time before I discovered that he was interested in photography. Being interested in the work myself, I approached the subject one day by saying:

"So you are interested in photography, too?"

"You bet I am," he replied. "Are you?"

"I'm a nut on the subject. I've taken pictures since I was a kid. The way I used to manipulate my old Bull's Eye, made Buffalo Bill lie awake nights with envy. What kind of an outfit have you, Perry?"

That was a perfectly innocent little question in itself, but it sure started something.

"Well," says he, kind of easy like, "I have a Century 5x7, thirty-inch draw, front and back extension, vertical and horizontal swing, rising and falling front, reversible back, with three elements of series VIIA Bausch & Lomb Convertible Protars, mounted in Compound shutters. Then I have a Zeiss Tessar working at f-4.5, with Royal Foreground filter and ray screens to fit both lens sets."

Right then I realized that as a photographer I was some piano-mover. I discovered that there were many degrees in photographic nuttism, and that he was a regular nut,—a real nutty nut.

PINE CONES—BIG BEAR LAKE By JOHN C. STICK

"That's nice," I managed to say. But that didn't stop him.

"I notice that there is quite a discussion about the relative values of Isochromatic and Orthochromatic plates as against the Panchromatic plate for all-around use. What do you think about it?" quoth he.

"I don't doubt it," I replied in a kind of daze; and I wondered how he could possibly know so much and still be so young. As a conundrum he was a world-beater. As a conversationalist he was the best monologist I had ever heard.

Just then someone came into the office, and that broke up the party. Up to this time my experience consisted in the use of a Bull's Eye camera, years ago, and I was then the proud possessor of a Brownie 2A; I farmed my work out to the corner drug store, where, for a jitney per, I got back my films and prints the next evening at five. I was satisfied with white paper for skies, and often wondered why they didn't print in the clouds and the water; all because I didn't know.

That night I had a horrible dream. I dreamt that when I came home, my wife called me to dinner. We had Orthochromatic soup, served in Protar china. The spoons were marked "Warranted Genuine Tessars". The potatoes were served in a Jena glass bowl with Zeiss shutters and compound combinations to open before you could get at them. The meat was a Century old; the chairs had rising and falling backs, and the table had all kinds of swings. My wife wore a Panchromatic dress, and had a Royal Foreground Filter for a monocle.

A FIGURE STUDY By H. J. FARRANT

I pitched and tossed and woke up in a sweat. If Perry had heard what I said about him then, we wouldn't be friends today.

The next morning I visited our city library and asked for the best books they had on photography. I was handed three: The *Photo-Miniature,* No. 36, "Lens Facts and Helps," "How I Choose and Use a Lens," from the "Practical Photography Series," and a big thick book called "Photography for Young People," by Jenks. With the information gained I made my real debut into the realm of photography. Little did I dream of the vast field to be explored.

Night after night, for a week, I read and re-read these three books, absorbing more information than I ever knew existed about so simple a matter as snapping a kodak. Then followed other books and other nights of study.

Someone had said: "Most people who pride themselves on riding a hobby don't,—the hobby is in the saddle." That was literally true of me. I was making a desperate effort to absorb all the information I could. Perry, by this time, had found out, not only that he had a willing listener when he wanted to talk "picture takin'," but that he had started sort of an avalanche of questions. He discovered that the interrogation point was my middle initial. But he was patient and answered question after question, explaining the things, one after another, that my studies of the night before had left in doubt.

One evening some weeks later, I sat literally "eatin' up" literature on photography. My wife, who had patiently watched her "hubby" struggling for a half-Nelson on the subject, ventured to ask:

"How is the photographer getting along by this time?"

"Just think," said I, as I laid down my trade catalogue, "ever since the war the photographers of our country have been unable to get their favorite developing agent, metol; and now this firm has announced monomethylparamidophenol sulphate, guaranteed the same chemically and equal in result to the best German metol, and at only two dollars and seventy-five cents an ounce. Isn't that great?"

"It sounds more like a seidlitz powder," she replied, and fell to her mending with a sort of another-good-man-gone-wrong sigh.

About this time we were starting for a camping trip, and Perry loaned me his little Voigtlander Alpine camera, fitted with a Collinear, Series III, lens. I bought a film pack, and the results were three really good pictures out of a dozen. At the end of a month I had a dozen or more pictures so far superior to anything I had ever taken before that I was wild with enthusiasm.

A few nights later I came home with joy oozing from every pore of my face. Soon the Mrs. asked: "Whence all this beaming countenance?" With great enthusiasm I explained that I had just spotted a 5x7 camera, a perfect dream of a box, sixteen-inch draw, rising and falling front, swing back, etc., in fact, everything to be desired in a camera, with a sole leather carrying case, all for the measly insignificant sum of fifteen simoleons. Then there was a Collinear lens in an Ilex shutter, just like that dandy one Perry had loaned me; I could get it on trial, and if I liked it, I could pick up another bargain—a mere fifty-six dollars.

All during this recital the mercury was rapidly falling, and a chilly feeling

JOHN C., JR.—A PORTRAIT By JOHN C. STICK

began to creep up my spine as the last words fell feebly from my lips.

"I suppose you bought them right away. It would be just like you?" was the reply in cold-storage language.

"Yes, I bought the camera," I confessed. "The lens I only borrowed." Then with a great gulp, I added: "Aren't you glad?"

"I can't say that I am," she replied. "I feel much like the little boy when the new baby arrived at the house,—there are so many things we needed worse."

By this time four or five of the leading photographic magazines began to find their way upon our library table each month; the line of blue-covered *Photo-Miniatures* upon the shelf grew longer and longer; I bought that lens; and catalogs from every camera manufacturer and lens maker, from camera exchanges, photo supply houses, dry plate manufacturers, and divers other sources, began to arrive in such numbers that the postal facilities of our little town were seriously disturbed. And every night from early till late, I sat serenely in my big arm chair with a lap full of literature of every description, calmly pursuing my studies. While outside in the cold, cold world "two-thirds of the people were hanging on to the coat tails of progress, shouting, Whoa! and a good many of the rest were busy strewing banana peels along the line of March," I was quietly trying to forge my way to the head of the procession.

Then came the salon of the Pictorialists of Los Angeles last January. Someone told me about it one evening and the next morning I was there. Again and again I visited this exhibition, seven times in all. Here was the mecca of my dreams.

I soon became acquainted with the many contributors' names and conversed knowingly with my friends about the Buffalo group of carbon workers, the New York gummers, the platinotypes, and the multi-gums, the bromides and chlorides, and about our wonderful group of California workers; John Paul Edwards, Rabe, Sheahan, Fleckenstein, Williams, and others.

Back of it all, however, I kept on asking myself the question: "How in the Dickens do they do it?" That was what I wanted to know above all things.

THE CORRIDOR

By JOHN C. STICK

THE BRIDGE

Elbert Hubbard said: "If you want something, you should pray for it as if you had no hope on earth, and work for it as if you expected no help from heaven." That was just what I did. I began to exhaust the possibilities of the city library on works on photography.

Two books which came to my hands are especially worthy of notice. They are 'Scratchyitchy" Hartman's work on "Composition," and Paul L. Anderson's book "Pictorial Photography". From these two books, from Jenks' book heretofore referred to, and from the *Photo-Miniatures* I gained a great deal of what knowledge I now have. By this time I was beginning to understand things that before were merely words. The things I learned were becoming evident in my work. My friends saw the change and spoke of the improvement in composition and technique. I was pushing ahead, always striving to do something better. If I fell, it was upstairs,—not down. My heartiest booster was my wife who so patiently permitted my hobby to ride me.

I learned that there was a camera club in Los Angeles. Immediately my application was put in, and in due time I was contributing my one per, the

price of belonging. David J. Sheahan, whom I consider one of the best informed men in photography, began a course of twelve lectures, just after I joined the club. After his first lecture he invited every one to ask him questions. Down in his heart I know he's sorry he included me in the invitation, but I'll say this, he's game. No matter how simple or foolish the question seemed, he patiently handed out the desired information and set me straight again.

Soon my enthusiasm, or "pep", or whatever it was, got me on a committee, one of those bodies that "takes a week to do what one good man can do in an hour". Then I became treasurer, and lastly a member of the board of governors.

During this time my first dark-room was expanded to twice its original size. I now have a full developing and enlarging outfit, trays enough to run a restaurant, and shelves filled with enough bottles and cans of chemicals to make an ordinary drug store look like the last rose of summer. I have added a soft-focus lens to my kit, and color screens, isochromatic and panchromatic plates have no more terrors for me. I wear an exposure meter in the place of a watch, and gradually the walls of our little home are assuming the appearance if not the status of a photographic salon.

The Camera In Field Work

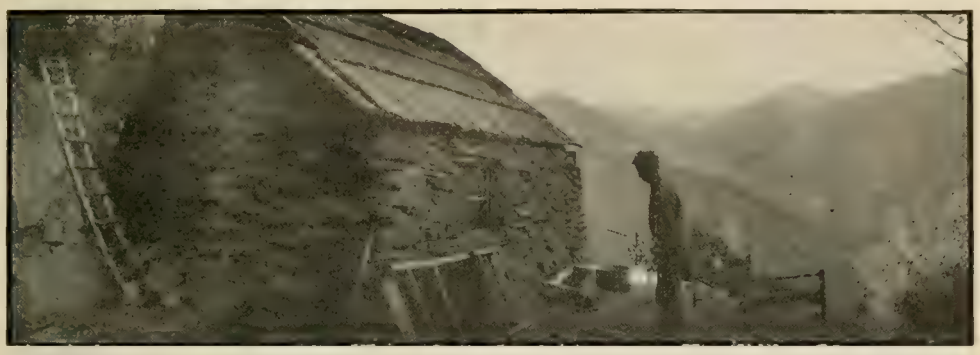
By Ford A. Carpenter

With Illustrations by the Author

For very many years; how many may be guessed when it is admitted that the work originated with an 8x10 plate camera before the advent of the kodak or the discovery of the developing paper, the writer has used his cameras in field work much the same as he has used his note books. All of my official reports, for over a score of years, have been elaborately illustrated with photographs made on the spot and having always in view the point that it was desired to emphasize.

As to equipment, it has been found necessary to use two cameras; a 3A Kodak and a No. 4 Panoram. If the kodak is furnished with a high grade anastigmat lens and a good shutter, with the usual additions of a small tripod and a couple of ray filters, little more need be asked in the way of a camera. The panoram I have found essential, especially when photographing drainage areas in the mountains, and also in balloon work at three or four thousand feet above the ground. These instruments have the advantage of being ready to hand and require no special adjustment, and they can be grabbed and an exposure made without special focusing or the use of a finder. My practice is to use my kodak as a cowboy uses his gun. As the latter often does away with the trigger and fires by letting the hammer slip under his thumb, so practice will make the photographer independent of a finder. I have one of the direct view

pattern on my kodak; but very often, as in quick work in a balloon or airplane, the quarters are too restricted to permit the use of such refinement of procedure.



RAINFALL STATION AT SOURCE OF SAN GABRIEL RIVER—Water for irrigation, light and power come from the mountains of Southern California, and the San Gabriel is one of the most important river systems in that region. This photograph shows one of the voluntary observers of rain and snow, and his stone cabin. It is on the edge of a cliff considerably over a thousand feet above the river

MEASURING SNOWFALL, SAN ANTONIO CANYON—Heavy snowfall in the mountains means a dependable supply of irrigation water during the following summer. The water-content of snow is determined by carefully melting an average lot and noting the amount of water in inches and hundredths. Generally, an inch of dry snow equals one-tenth of an inch of rain

A STANDARD RAIN-GAUGE IN OPERATION—A rain-gauge is composed of three parts: the receiver, held in the man's left hand; the measuring cylinder, out of which he is pouring, and the overflow cylinder, protected by a wooden base. As the receiver is ten times the area of the measuring tube, as little as one one-hundredth inch of rain may be accurately measured

DEBRIS CONE OF THE SANTA ANITA—Topographical maps made by means of photography from aircrafts have their use in peace as well as war. This, of the Santa Anita Canyon, was made from a balloon over a thousand feet above the ground, and shows, as no other way would, the importance of the conservation of the torrents which leave well marked paths of boulders and sand

OIL-POTS HEATING A LEMON GROVE—Whenever a drop in temperature is indicated, lemon and orange growers protect their fruit by lighting oil-pots. These not only raise the temperature but give off a protective blanket of smoke or "smudge" against the oncoming or descending colder air. Millions of dollars are saved every year by heeding the frost warnings of the Weather Bureau

This is also true as regards shutter adjustment; I have made it an invariable rule to always shut up my kodak with the lens opening at the minimium opening for the time of day or season, and the shutter set at about one-twentieth second. Whenever using the slide or front lens adjustment, I always replace to normal; this prevents disappointment should I use the camera later and forget that the lens board has been moved up or down or to the right or left. As regards lighting, I have learned very much from studying the splendid work of the moving picture cameraman.

All photographs should be mounted on sheets the size of the report to be rendered and the title should be carefully written so as to convey the exact knowledge desired to impart. A few lines of explanation, written just beneath the title, should also accompany the photographs. Often, in the rush of cursory examination, the reader of the report will "read" the picture part, and if one places a few clinching statements beneath the illustrations he will accomplish much. Beneath every print should be noted, for future reference, the date the photograph was taken and also the direction the camera faced. I also incorporate in such legends the elevation of the camera and the exact hour and minute, when the pictures are made from aircraft; at other times these data may be omitted.

In using the camera in the field for illustrating reports, I have had best success in always being conscious of what I want my reader to see in the finished picture. In order to do that, pains are taken to make the photograph tell the story, giving proper value to masses, especially in the matter of light and shade. The photograph should be sharp and clear and have that not easily described quality that is generally called snap.

Catching Character With a Camera

By Crawford Trotter

With Illustrations by the Author

People are more interesting than things. If every photographer who sought to sell his prints to the editors kept this fact in mind there would be greater sounds of rejoicing in the haunts of those worthies and more frequent trips to the paying teller's window on the part of the photographer.

The fact that every camera fiend blazes away plates on landscapes that, because of their coloring, look impressive to him, does not prove that the finished print from the resultant negatives are the most popular in the maker's albums. A landscape, as selected and treated by a pictorialist who understands composition and who knows the best printing medium in which to bring out the beauty of the picture, is quite a different thing from the average mountain view or seascape that long-suffering editors so persistently remail "with regrets".

A LITTLE MAID FROM THE ORIENT

But it is the face that is the thing. How many newspaper photographs are published for pictorial interest, as against those that brim with human interest? The pictorialist will probably produce the best picture from the professional's point of view, but the newsy element will compensate for a lot of technique, and more likely draw the two-dollar check. Just as people crowd close to see a celebrity, so too do they prefer a "close-up" picture of the same celebrity rather than a view of a corner of his garden.

The difficulty that the man outside the professional lines of newspaperdom

A LITTLE INDIAN

A SLUM TYPE

experiences, is to know far enough in advance when news is going to "break", so that he may be there with a camera. And when he does know; lo, the staff photographers also know and get the choice viewpoints because of the little pasteboard sign in their hatbands. What chance, then, is there for the outsider in press photography? As far as news is concerned, there is very little for him.

But there is a field that professionals have little time to touch, although it comes within the realm of press photography, a field in which there is practically no competition, as yet, between amateurs. It is character stuff. The writer visited practically every important commercial photographer in New York trying to find characteristic studies of the Appalachian mountaineers. There were a few Appalachian pictures available, but all posed in the strictly formal manner which forever debars them from publication by discriminating editors,—and most editors can discriminate. To get the photographs finally necessitated a trip through the mountains of four Southern states.

As the professional portrait photographers can beat us when it comes to a character study of a celebrity, our field is still further narrowed. But we can afford to leave the celebrities to them. Our country is surely cosmopolitan, and the wonder is that so few photographers have ever thought of securing types of the varied peoples that flock to our shores. Of course, Ellis Island stuff has been overdone. It is generally the crowd that we see so accurately recorded there, but we seldom get any fair idea of the intimate character of the newcomers. And if conflicting interests are wrong in a fuzzy-wuzzy picture, they have still less place in a super-glossy intended for publication in a popular periodical.

Experience has taught the writer this one point : The editors want the face; and it must be a face that displays character. It need not always be pretty, for indeed, mere prettiness seldom tells a story. The accompanying picture of a slum

girl, freckled and tousel-headed, is not a beautiful thing, and expert photographers might quarrel about the haphazard technique, but it tells a story of physical neglect and emphasizes a point. It is a true type. And the fool editors who never read up on composition perhaps, buy the stuff. The average person we meet on the street has not sufficient interest attached to himself to warrant his picture being published. The amateur press photographer Graflexes him because he is representative of a group or a condition of humanity. Then he becomes valuable.

Character types are the scarcest pictures on the market,—and they can be secured anywhere. The simplest equipment can be used. Try catching character with a camera.

SHADOWS COOL AND WATERS STILL — By MISS ORRIE P. CLOSE

Brushes Versus Trays

By Frances Mathilda Purdy

Unfortunately, the H C of L has also invaded the field of the amateur photographer, and the question of pursuing this delightful pastime is becoming more difficult every day, if one would not spend the greater part of his income upon chemicals.

I have solved this difficulty, to some extent, by the use of small, camel's hair brushes. For treatment of plates in developing, instead of pouring a quantity of developer, sufficient to cover the negative, into a tray, I use a small amount, into which I dip the brush, and, holding the plate in one hand, gently cover the emulsion side with the developer, brushing well around the edges of the plate and keeping the whole surface wet with the brush. One will find that a very small amount of developer will work just as well as total immersion of the plate, as, the emulsion covering one side only, there is no necessity to wet any other portion with the developer.

This system has the advantage of affording an opportunity to observe the progress of development, which is very fascinating, as well as insuring a much more perfect negative than if placed in a tank, or lifting from a tray from time to time for observation. Also, for holding back development of certain portions of the plate as may be necessary, in cases of over-exposure, etc.

I also use this method for intensification and reduction with great success; work of this nature being much better done in this manner in any case, as it can be closely observed, and the progress of the chemical action checked, when desired, by water immersion.

It is well to have a number of these brushes, which should be short-handled, flat and about an inch wide; also one or two with pointed ends for careful work on difficult portions of the negative, such as reduction of a blur of light from a window, intensifying clear shadows, etc. It is also a good plan to mark, with India or other ink, upon the handle of each brush the word, Developer, Intensifier, Reducer, Water, or whatever chemical is used, so as to avoid the possibility of a mix up that might result in a ruined negative.

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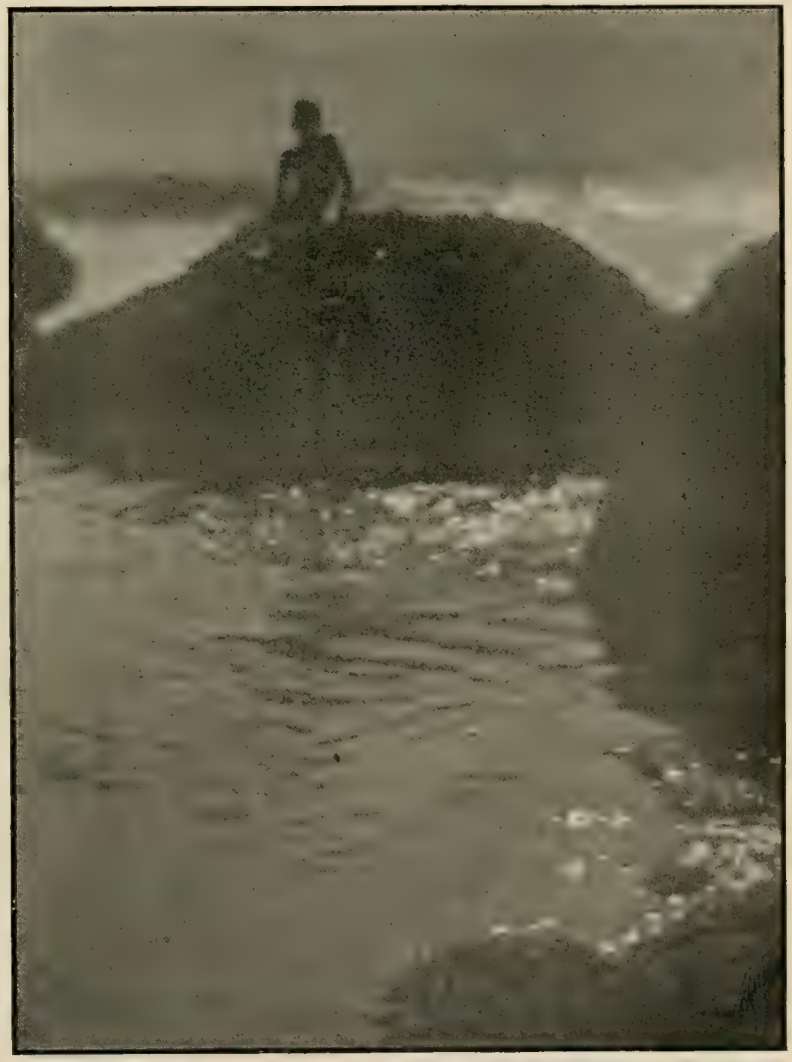
By OTIS WILLIAMS

SPANISH BOY

The Pictorial Photographers of America

By Louis Fleckenstein

Many of you know what it is to live in a section or community where there are very few, or none at all, interested, like ourselves, in photographic matters. There are so many things one wants to know and to talk about, and the text-books and magazines never seem to be able to wholly satisfy one's longings in that direction. Our immediate friends appear bored to death when we start to talk on our favorite subject, hence the joy and glee with which we hail our fellow enthusiasts; and what a satisfaction it is to display our prints, negatives and apparatus, and to swap ideas, with some one who really has intelligent ideas on the subject.



THE BATHER — By FRED R. ARCHER

In the larger cities we have our camera clubs, certainly of great benefit to their members; and where there is no danger of becoming spoiled by the flattery of one's associates. True, there is often much contentention between those who specialize in various

branches, but there shouldn't be. What difference does it make whether I take my pictures sharp with an anastigmat lens stopped down to f-64, or with a soft-focus lens, wide open, provided the result is a faithful portrayal of the subject. To produce good pictures is the principal thing, and he or she who produces the best possible, whether a landscape, portrait, a bit of architecture, or of machinery, an autochrome or lantern slide, it matters not what branch of photography, he or she is an artist. Until one becomes such, they are not producing the results they should. Some do not care; but, on the other hand, there are others who are never content to be satisfied with present results. There is always much to learn and many ways to improve. When one has reached the limit afforded by the club, there are the periodical salons, open to all, but not always accessible to all. Every now and then some organization has appeared to supply the need, but most of them have been too limited in scope or have embodied some principles which made them unpopular, after a time. All, however, serve a good purpose, if nothing more than to point the way; and eventually, with a broadened vision and with the advantage of improvements suggested by the experience of the pioneers in the field, an all-American institution, known as the Pictorial Photographers of America, was launched.

This happened some three years ago. Section 2 of the Constitution says: "The objects of the organization are to stimulate and encourage those engaged and interested in the Art of Photography; to honor those who have given valued service to the advancement of Photography; to form centers for intercourse and for exchange of views; to facilitate the formation of centers where photographs may be always seen and purchased by the public; to enlist the aid of museums and public libraries in adding photographic prints to their departments; to stimulate public tastes through exhibitions, lectures and publications; to invite exhibits of foreign work and encourage participation in exhibitions held in foreign countries; and generally to promote education in this art so as to raise the standard of Photography in the United States of America."

This plan has not only proven feasible, but has become increasingly popular throughout the East, where framed collections of the best examples of photography have been exhibited over the circuit of the art museums the past two years. These exhibitions have afforded inspiration and education to thousands of ambitious photographers who otherwise would be denied the opportunity to see and study the best photographic work. An all-Western circuit, to include the States lying west of the Rockies, is now being arranged,

Section 3 of Article 2 of the Constitution says: "Any person interested in the objects of the Organization (quoted above) shall be eligible for membership." Thus, it will be seen, the association is not for a special class or a favored few, but opens its doors to all who are interested in photography. Much good should come from it, for results do not depend on the efforts of a few high-keyed enthusiasts who must do all the work, but is widely distributed among many in different sections of the country, working intelligently under the direction of the Executive Committee, Pictorial Photographers of America, with headquarters at 119 East Nineteenth Street, New York City.

Darkroom Construction and Technique

By Herman C. Bryant

In Cassel's "Cyclopaedia of Photography" I have found the following definition:

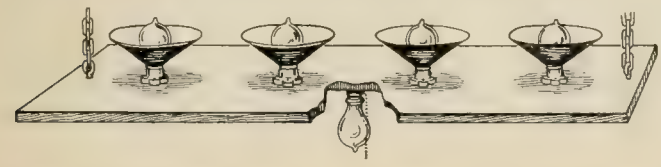
"Darkroom, or Developing Chamber. A room or cupboard devoted principally to the operation of development, and from which all white or actinic light is excluded."

Please notice that this definition does not say that the walls are painted black. Why does nearly every photographer take such great pains to paint every part of his darkroom a dull black?

If necessary, forget the words darkroom and call the place a developing room instead. Then repaint it, top, sides and bottom, with plenty of good white paint, paint that is absolutely white.

If you will look again at the above definition you will notice the phrase, "from which all white or actinic light is excluded". That does not have anything to do with the color of the room itself, it simply means that you must shut out all white or actinic light from the interior of the room. There are two advantages gained by the white walls. The most important feature is that white affords the best reflecting surface for the red light. Some authorities consider the second reason equally if not more important than the first. Chemicals splashed against white walls are more easily cleaned than from a dark surface.

If you are accustomed to doing tray development, you will probably need one small safe-light over your tray in order to judge the density of your negatives. If time and temperature tank development is used, this light is not necessary, but in either case there should be inverted red lights hung from the ceiling. I once used this arrangement in a 10x15 developing-room, having a twelve-foot ceiling, and found that six tipless ruby lights of eight candlepower each, would not fog orthochromatic plates while developed in an open tray. It was because the light was not actinic and the white walls could only reflect the red light. It was possible to read a paper in any part of the room and the corners were as light as the center. This arrangement of lights used is shown in the illustration herewith. This board hangs about eighteen inches below the ceiling and the under side carries a white light in an ordinary pull-cord socket. The drawing shows only four ruby lamps and shows them closer together than they need be in actual practice where a relatively longer board and more of the eight candlepower lights could be used. The tipless lights are also safer than those of regular pattern as shown.



For an entrance to the developing room I have always preferred a double door-way made by extending a partition into the room and hanging a second door thereto. However, this is much a matter of personal choice. A great many workers prefer a winding passage-way, but I have found that when it is necessary to make a great many trips in and out that the double door is less time-consuming. A single door, with a felt edging overlapping the casing so that no light can come in around it, will do very well if one does not need to go in and out while negatives are being developed.

Ventilation is another important item and is best taken care of as the construction of the room permits. A very good method is to use three or four short lengths of stove-pipe connected by elbows and so arranged as to prevent light entering the room.

The developing room should be as free from unnecessary boxes and bottles as possible, as these are all favorable to our great enemy, dust. All bottles should be occasionally wiped off with a damp cloth and care should be taken that chemicals do not run down the outer sides of the bottle, when pouring, because they will dry and the small crystals float around in the air, doing a great deal of damage. Always hold the bottle, when pouring, so that the label is on top; then, if any of the solution does run down the sides it will not stain the label and it is easily wiped off. If you write your labels with green ink on white paper, you will easily be able to see them with the red lights turned on as the green ink shows black under the red light.

It is easy to keep the developing bench clean if some paraffine is shaved, sprinkled over the wood and then rubbed in with a warm iron. As this coating wears off it can easily be renewed by repeating the process.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

FIXING BATH SEDIMENT: Sometimes a sediment, probably of sulphur, is deposited on the face of the negative by an alum-acid fixing, adhering thereto, no matter how well one's plates or films may be rinsed. The one best remedy is to swab it off carefully and completely with a tuft of moist cotton, before drying. Sometimes, however, its presence is not suspected until after drying, when it sometimes is found sufficiently well defined to show in the prints if the negative is somewhat thin. After trying a number of possible removers, I found that by again soaking the film in the acid fixing bath and gently rubbing the surface with the fingers and palm, while still immersed, a bad film could be made capable of producing a salon picture.—W. C. S., California.

LANTERN SLIDES, TO SIZE: When making lantern slides with the enlarging lantern, an aid in adjusting for the proper size is secured by gluing one of the black paper frames which come between Standard lantern slides upon the white card upon which the focusing is done.—W. C. S., California.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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This a Southern California Issue

A committee composed of W. C. Sawyer, chairman; secretary, Orrie P. Close; treasurer, John C. Stick; president, R. L. Mansfield, and past-president, T. K. Adlard, all of the Southern California Camera Club of Los Angeles, is responsible for the contents of this issue, the contributors, both of reading matter and pictures, being all residents of the "Sunny Southland"; and, with but one or two exceptions, members of this progressive camera club. This organization, while young, is rather precocious, having early inaugurated a regular course of instruction for beginners as a part of its activities, besides annual exhibitions and national salons. Providing the contents of an individual issue of a photographic magazine is a new undertaking and the committee submits the result of their efforts to the readers of CAMERA CRAFT with its humble apologies for any shortcomings that may deserve censor and with a becoming modesty should any little praise seem to be merited.

DAVID SHEAHAN DEMONSTRATING—S. C. C. C. COURSE IN PHOTOGRAPHY

British Import Restrictions

In our editorial in the July issue, dealing with the removal of British import restrictions as announced by the War Trade Board, we advised that those inter-

ested should consult the Division of Foreign Tariffs, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C. That division has kindly advised us that British restrictions have only been removed from the following named photographic apparatus: ferrotype plates, camera shutters, positive papers and cinematograph cameras. For other photographic apparatus licenses are still required and will be granted only exceptionally for cameras fitted with lenses. Photographic apparatus of other kinds will be admitted under license in proportionate quarterly amounts to the extent of thirty-three and one-third per cent of the 1913 imports. Licenses where required must be obtained by importers in the United Kingdom. As previously advised, the bureau mentioned is endeavoring to keep itself informed on the import regulations of all foreign governments and those desirous of making exportations will do well to communicate with it.

Mr. Strong Passes Away

Henry A. Strong, for more than a quarter of a century the president of the Eastman Kodak Company of New York, died at the family residence in Rochester on July twenty-sixth, aged eighty-one years. Mr. Strong had been a successful manufacturer of whips for many years as senior partner of the firm of Strong & Woodbury, when he became interested in the photographic business in 1881. George Eastman was at that time manufacturing dry plates, and it was Mr. Strong who had the vision and the nerve to back the then small enterprise with a few thousand dollars. The business was at first conducted as a co-partnership under the firm name of Strong & Eastman, but its rapid growth demanded larger resources and it was but a short time before it was incorporated and additional capital interested.

Mr. Strong sold out his interest in the whip business in the year 1895, when he took an active interest in the photographic business which had then become the Eastman Kodak Company. In 1904 he retired from close association with its affairs, but remained on the board of directors as president. His business success was known, of course, to the world; but it was in Rochester, and particularly among those who were closely associated with him, that he was most appreciated. He had not merely those qualities of uprightness and integrity that gave him the respect of business men, but a largeness of heart, and a happy way of showing it, that endeared him to those who worked with and for him.

He was not merely generous in a big way, a liberal giver to the charities of his home city, but he was thoughtful in the little things. He had the happy faculty of carrying with him an atmosphere of good cheer; a hard worker, until his later years, there was always time for a pleasant word of greeting, a winning smile, a merry quip or jest.

Photography owes much to Henry A. Strong, for he it was who first had faith to put money into the business that Mr. Eastman was developing. Rochester owes much to him, not alone for his backing what is now its greatest industry, but for his charities and for his good citizenship.—*Studio Light.*

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

New Printing Process In Natural Colors

S. H. Williams describes a new printing process in the *Journal of the Royal Photographic Society* that promises a success that has not been attained hitherto in reproducing colors on paper. The following excerpts will give the general nature of this method, which will almost certainly receive improvements that may place it within the reach of the everyday worker:

The ordinary way of attempting three-color work consists in making three separate exposures on three separate plates with three separate color filters: red, green and blue. The main objection to this is the necessity for the three separate exposures, since, except under the very best lighting conditions, it practically limits the worker to still life, for portraits are almost out of the question when three plates have to be exposed in succession, and the same is true of landscapes which include clouds. To overcome this objection a great many people have spent time upon ingenious devices, the most elementary of which was the use of a camera with three lenses side by side, thus giving the three pictures at one exposure. Unfortunately, the viewpoint of the three lenses differed, and so did the pictures. A modification of that method was to use three parts of the same lens by means of mirrors. But even though one got three pictures from a single lens, this did not eliminate what is known as the stereoscopic effect. Other devices have been suggested from time to time, involving again the interposition of mirrors, but none of them are free from objection.

It occurred to me that a much simpler method of working, and one that would get the three-color impression at a single exposure on a single plate, would be to use a three-color filter. Two conditions in the use of such a screen are extremely important, first, that the three-color screen must be of such a character as to enable us readily to make a separate print from the parts filtered by each of the three colors; and, secondly, that the color elements shall be so finely divided as to give the effect of a continuous picture.

So far as I know, there is no three-color screen on the market which fulfils these conditions, and therefore the first thing I had to do to test my ideas was to make my own color filters, and thereby hangs a story, which I may tell at a later stage this evening. I show the screen which was eventually evolved. The three colors of which it is composed are red, green and blue, and they are arranged right across the plate in straight lines, the colors alternating. It is clear, I think, that if we were to expose a suitable plate behind such a screen, one-third of the plate—that is to say, the finely divided parts which come behind the red lines—will be filtered by the red, another third by the green, and the final third by the blue. If we can readily make a print from the parts which come behind each set of lines, and the lines are sufficiently fine to give the effect of a continuous picture, then we shall be able to get the equivalent of the three-color impressions either in black and white or in colors complementary to the colors on the screen, that a worker of the ordinary method gets from his three separate negatives.

In order to carry this out it is necessary to have another screen, which consists simply of black lines and clear spaces. The black lines are the same number to the inch as the lines of each color in the color screen, namely, one hundred and eighty to the inch, or, in the case of the color screen, five hundred and forty lines of the three colors. But the black lines in this other screen are just twice the width of the spaces in between, or equal to the width of two contiguous lines of different colors in the color screen. I have here models of both the color screen and of the key-plate, as the other is called, and it will be observed that if I put the key-

plate in contact with the color screen a number of colored bands appear, due to the color lines of the screen being crossed by the lines of the key-plate, and the bands can be made wider or narrower as the screen is turned. Ultimately, in a certain position, when the lines of the key-plate are parallel to the lines of the screen, the color bands disappear altogether. By now sliding the key-plate a little, I can cover up any two colors and expose the other, so that I can get in turn a red, green, or blue impression.

Now, in the case of the negative which has been exposed behind the color screen, the key-plate makes it possible to cover up, not two colors, but those parts of the plate which have been filtered by those two colors, and to make a print from the exposed portion. I can slide the key-plate along the negative, first exposing from the parts filtered by the green, then, after a slight motion, from the parts filtered by the red, and, finally, from the parts filtered by the blue. That is an operation which can be done by hand, but I have designed and constructed a mechanical way of doing it which reduces the operation to as automatic a movement as most of the operations in photography. I have here a carrier for my enlarging camera with two platforms, on one of which I place the negative, which is held in position by a number of little springs bearing on the edges of the plate, and on the other platform I put the key-plate. On closing up the carrier the two are brought into contact, and I have introduced, by very simple link motions actuated by screws, means of turning and of sliding the one plate in relation to the other.

In operation, therefore, we have first of all the three-color filter behind which we expose a plate. The negative is mounted on one of these platforms, the key-plate on the other, the apparatus closed up, and the negative and key-plate are brought into contact. The carrier is put in the enlarger. On looking at the enlarging easel we see a projection of the negative crossed by a number of bands. These are the equivalent of the color bands seen earlier, and are formed by the lines on the key-plate crossing the lines on the negative. It remains to turn the screw until the bands widen out and ultimately disappear, when one knows that one set of lines is parallel with the other, and then by turning the other screw the key-plate can be moved until it covers up the parts of the negative filtered by two colors, and now I can make an exposure from the parts filtered by the third color. By moving the key-plate along I get in turn prints from the parts filtered from each of the other colors.

It may be asked how I know which parts I am covering up. We have an easy way of arriving at that information. On the color screen I have certain marks which I call identification marks. A single mark consists of a break in the blue lines, a double mark of a break in the green lines, and a treble mark of a break in the red. When I am covering up on the color screen the parts colored green and red, and only the blue lines are to be seen, I see that single mark because it consists only of breaks in the blue lines. On sliding the key-plate along I become aware of the double lines which consist of the breaks in the green, and on displacing further these disappear, and I see the three marks. These same identification marks are on the negative, only instead of being white marks they are darker. Therefore, on sliding the key-plate across the negative, I know when I see the single mark that I have the parts of the negative which have been filtered by blue; similarly when the double mark is visible we have parts of the negative filtered by green, and similarly again the treble mark indicates the parts filtered by red.

Thus I have from the one singly exposed negative three separate prints, one of which has been filtered by red, one by green, and the other by blue. From this stage it is possible to work in any one of a dozen different ways. The ozobrome method can be used, as is done in the Raydex printing process, or, instead of using the color sheets of the Raydex method we can get, still by the ozobrome process, three pictures in plain gelatine, which can be dyed up, and we have what is known as the Sanger-Shepherd process. Or these three prints can be treated as the printing positives of the pinatype method; or again—particularly if we use a paper like the kodak transferotype—the prints can be bleached to a silver salt which has an affinity for certain dyes, such as silver iodide has, and the prints can be dyed up in three colors complementary to those of the screen, the silver being removed ultimately and the three prints put in register so as to give the color result.

The method which appeals to me most, however, is the bromoil method, and the few pictures I have to show are obtained by that method. The yellow, red and blue prints, complementary to the blue, green and red of the screen, are bleached for bromoil, and after they have gone through the usual bleaching processes, they are inked up in printer's ink applied with a brush. My own method of working is something like this: Having bleached these three prints, which are soaking in water, I take out the yellow one, make it surface-dry by mopping, and then by means of a brush ink it up in yellow; when completed I put it on a piece of plain drawing paper, smooth it out, and subject it to pressure (in my own case it is put through the domestic mangel). I have thus transferred the yellow pigment from my bromide on to the drawing paper. The paper bearing the yellow print is now hung up to dry; it is not very wet, but it has absorbed a little of the water from the wet print. I then proceed to pigment up the second print; it is surface-dried, inked-up blue, and then put on the top of the yellow print in register and passed through the mangle—which means that I have transferred the blue on to the top of the yellow. To complete it, I go through the same process with the third print, inked up red, put it on the top of the print which already bears two impressions, and again put it through the mangle. It is not a long process, occupying perhaps half an hour.

A Bright Edge To Objects

Attention has been called once more in our correspondence columns to the light line which is often seen in photographs bordering a dark area: and it is curious to note that at least three, quite distinct, causes have been mentioned to account for it. The first regards the phenomenon as subjective: that is to say, as not existing in the photograph itself, but originating in the optical system of the person viewing it. Without questioning the fact that such an effect may be produced; we must point out that this does not account for the many cases in which the line itself is obviously objectively present in the print. There are then two explanations of it, a chemical and a physical one. The chemical explanation is that in a film which has been exposed to a strong light in close juxtaposition to a deep shadow, there exists, in the shadow area, a quantity of comparatively unexhausted developer; whereas, in the light part adjoining, the developer is not merely partly or wholly exhausted, but is highly charged with the restraining bromide formed by the reaction of development. The unexhausted developer to some extent diffuses into the adjacent area, and so supplements the work of the developer already there, causing the image along the border line to be additionally dense. Rocking the dish, or reversing the tank, during development tends to minimize this action; but there is no way of preventing it altogether, as it takes place to a large extent in the substance of the film itself. As its extent is related to the thickness of the film, it is usually quite unnoticeable in a contact print: but when the image is greatly magnified, as in enlargement or in kinematographic projection, it may become very distinct. The third explanation is that the line is due to diffraction of light at the edge of the shadow: and it is possible that this may take place in certain special cases. But the illumination in the vast majority of photographic subjects is too general and diffuse in character for this to be perceptible.—*The Amateur Photographer.*

Measurements of Plate-Sensitiveness to X-Rays

Comparatively few investigators have published results of experiments on the sensitometry of plates to X-rays. The following abstract of a paper by Miss N. C. B. Allen and Professor T. H. Laby, read before the Royal Society of Victoria last year, shows the value used by these experimenters in obtaining measurements of inertia, contrast, and speed of plates by sensitometric exposure to X-rays. The plates were developed in strips for a constant time of four minutes with hydroquinone developer at sixty-eight degrees Fahrenheit, the density of a fog strip being deducted. The density measurements were made with a polarization photometer. As the expression of the exposure the authors adopt the formula $\frac{V^2 i t}{d^2}$ where V is the pressure in volts of the current supplied to the Coolidge tube: i t in coulombs the consumption in current by the tube during a period of action of t seconds and d the distance of the focus of the tube from the sensitive plate in centimeters. The tube was employed at three different voltages—namely

thirty-one thousand five hundred, seventy-three thousand and eighty-three thousand. Current variations ranged from 0.03 to 0.06 milliamperes. By plotting the densities obtained against the logarithm of the exposure according to the above formula the curve obtained was broadly similar to that produced in H. & D. measurements. In the case of densities ranging from zero to about 1.0 the curve exhibited convex formation towards the log exposure axis, then following a straight line to densities of about 4.0, which were the highest measured. By producing the straight line portion of the curve to meet the log exposure axis a point was obtained representing the logarithm of the inertia of the plate, a quantity which was found to be independent of development. Contrast was taken as expressed by the inclination of the straight portion of the curve, whilst "speed" is provisionally and empirically defined by the authors as the reciprocal of the exposure required to produce a density of 5.0. In comparing the results obtained with the different voltages ranging, as already mentioned, the authors found that for a constant "exposure" the density produced did not vary with the voltage so long as variation of i and t was small, indicating that in the case of the wave-lengths employed the density produced depends on the energy of the radiations but is independent of their particular wave-lengths. The following results are quoted:

Brand of Plate	Inertia $\times 10^3$	Contrast	Speed $\times 0001$
Diagnostic	.71	2.2	15
Sunic	1.00	2.35	12
Seed	1.12	1.9	6.6
Wratten	1.95	2.2	5.2
Wellington	1.70	2.0	5.0
Imperial X-ray	1.26	1.6	3.6
Cramer	2.14	1.9	3.5
Ilford	2.19	1.9	3.3
Imperial S. R.	1.45	1.55	2.8

The editor of *The British Journal of Photography*, from whose pages we quote, adds:

Apparently the plates named are not all of them the special X-ray plates of the makers. Only two, which are known to us, are included in the table, and it is thus open to doubt whether the authors, in the case of the others, are referring to the "ordinary" plates or to those specially made for radiography.

Aerial Photography

There are still very vague notions as to the changes brought about by aerial photography in both cameras and lenses. Some idea may be gained by the articles in the *Journal of the Royal Photographic Society* of April last, where three special papers furnish an idea of the requirements in lenses which were ultimately met with entire success.

From one of these we learn that an f-6 lens was demanded of thirty-six inches focal length, to cover, with critical definition, an 8x10 plate. This was supplied and used, at a height of three miles above Zeebrugge, to obtain the minute details of the German fortifications. As a general rule, however, the majority of lenses supplied were of about twenty inches focus, working at f-4. We are told that the telephoto lens, while tried, was not a success, owing to the production of pincushion distortion. The kind of camera used in the operation of these large lenses is described by Spencer Leigh Hughes in the *British Journal of Photography* of May thirtieth, from which we extract the following particulars.

In a very short time one type of camera superseded another, each being a marked improvement on its predecessor. In the summer of 1915, Mr. Gray Pickard was requested by the War Office to go to the General Headquarters of the Flying Corps in France to discuss the subject of aviation cameras still further. The result of these consultations was soon seen in further improvements, and highly effective cameras were made in very large numbers. They were in use not only on all the war fronts, but also employed for training purposes in all home, colonial and Allies' camps. Though there were some of the authorities at the outset who were blind to the advantages of this new discovery so far as war purposes were concerned, those advantages were so obvious, directly the invention was given a fair chance, that aviation cameras were in demand everywhere, right up to the end of the hostilities.

The Germans certainly made great efforts to deceive our side by all sorts of methods and devices, but they were foiled to a great extent by these mechanical detectives, as they may be called. It was in vain that they moved their trenches, as they did continually, and in vain, too, that they tried by all sorts of means to disguise or hide their guns, for the aviation cameras revealed and recorded all their moves and tricks. They were in a real

sense of the word the eyes of the army. Nor should it be supposed that they were useful only in revealing the secrets of the enemy, for photography has been of enormous assistance in the recent war to our artillery. It is a fact that every gunner thinks he knows exactly where his shot goes, the fact being that he does not. Such a remark from a layman and civilian like myself would be presumptuous if made only on my own authority.

The statement has been made by Colonel Moore-Brabazon, and confirmed by many soldiers; indeed, the colonel has put the matter on record in this way: "It was not until we actually showed the marks made by the shells, by photographs, that they were practically forced to use aeroplanes for firing heavy guns. On that matter I remember well an officer flying over Ypres salient and sending back by wireless a curious message, 'that if anyone was firing at the center of the lake' —the name of which he gave—'he was hitting it.'" No one will today deny that aeroplanes have played a great part in directing artillery fire, but from the above quotation it seems that it was photography from above that really convinced the gunners that they were wrong in supposing they knew where their shots were going. Furthermore, as it was possible to know accurately the height at which photographs were taken, and the focal length of the lens used, the photographs could be made into scale plans, and it was from these plans that our attacks on the German defensive system were made. And in this way a method of producing what were dismissed as merely "pretty things" came to play a decisive part in the realities of war.

Another development of aviation photography, so ingenious that it might well appear incredible had it not been used in practice, and used with remarkably successful results, deserves notice. While a man may be a very good machine gunner on the ground, he may be a very poor shot with a Lewis gun in an aeroplane, hardly ever making a hit; he would be of no use so far as injuring the enemy is concerned, and at the same time he would inevitably be himself shot down sooner or later. But it was virtually impossible with an ordinary machine gun to prove whether a man was or was not a good shot from a flying aeroplane. It was then suggested that a camera, just like a Lewis gun, should be made in order to train flying machine gunners, or to find out those who could not be trained and to weed them out in the interests both of themselves and the service. I have seen and examined one of these machine gun cameras, known technically as the Mark III Hythe gun camera, and I may say that even experienced machine gun officers have supposed, until they have examined the invention, that it was an ordinary Lewis gun. The fact is, that in appearance and in operation, it and a Lewis gun are identical, but instead of firing a bullet the gun camera takes a photograph. As the process of firing a Lewis gun is exactly the same as of photographing with the gun camera, the man who is taking the photographs is, at the same time, learning how to use a Lewis gun, and the gun camera shows and records on the film how many hits the man would have made had he been firing bullets at the aeroplane which he is photographing.

Corrosion In Lenses

If lens users would acquire a little elementary knowledge concerning the nature and properties of glass, their instruments would stand a much better chance of keeping in good condition than they do at present. It should be known that what we call "optical" glass is made in a great variety of qualities, each of which is capable of taking its place in one or other of the many kinds of lenses. Some are as hard and impermeable as the glass we use for windows and tableware, while others are soft enough to be easily scratched or even dented, while injudicious polishing will quickly dim the exquisite surface upon the perfection of which so much depends. This is especially the case in some of the earlier anastigmats in which very soft and easily corroded glasses were used because others were not available. It is perhaps news to many people to learn that some glasses are so susceptible to damp that a single drop of water left upon the surface for a few hours will leave an ineradicable mark, while the presence of a film of condensed moisture will give rise to a general corrosion, which in mild cases shows in prismatic colors like those of a soap-bubble, and in severe ones as a yellow stain accompanied by a distinct depolishing of the surface. Unfortunately, there is no cure for this evil, for even the maker of the lens cannot repolish it to the same accuracy of figure that it originally possessed. Fore-

warned is forearmed, and knowing what is likely to occur the prudent man does not allow his lenses to stand about exposed to the atmosphere, but keeps them in tightly closed cases when they are not actually in use. Failing a case, which also protects the brass work, a well-fitting cap at the back as well as the front is an excellent protection.—*British Journal of Photography.*

Exposure In Enlarging

An American writer, the Reverend C. R. Lowe, has given particulars of a method for estimating exposures in daylight enlarging which has some features of novelty about it. Summarized, it consists of making a contact print from the actual negative to be enlarged from, using daylight for the purpose, and, of course, employing the same kind of paper as will be used for the large print. The apparatus is of the usual daylight type; that is to say, a window is blackened up, leaving only an opening rather smaller than the camera back. Against this the camera is fixed, and the image projected upon an easel in the usual way. The problem is now how to establish a definite ratio between the exposure for the enlargement and that of the contact print. To do this a correctly exposed enlargement is made by the usual trial and error or strip methods, and the time taken with a certain stop (in the author's practice this is always f-11), is noted. For example, this may be fifteen seconds with an enlargement of one and one-half times. A second opening of about 8x10, with an easily moved shutter, is provided in the window board, and the contact print made at such a distance from this that the correct exposure is about fifteen seconds. It then follows that any other negative exposed in the same position and the same distance from the opening will yield a good print with the same exposure as will be required in the enlarger. Other magnifications than one and one-half diameters will need the exposure to be increased in a definite proportion.—*British Journal of Photography.*

Sensitized Canvas For Oil Painted Enlargements

J. P. R. Wells, writing in *The Amateur Photographer* says: A query that frequently arises among photographers generally, both amateur and professional, particularly those who are anxious to color their work substantially in oil colors, is how to prepare artists' canvas in such a way that it can be printed upon and so afford a base for subsequent painting.

There have been various methods published previously in which canvas has been coated with a gelatino-bromide emulsion, but this has the drawback of being liable to crack when the painting is finished. The following, however, has been stated to be thoroughly effective when properly carried out, and it has the distinct advantage of not containing more than sufficient gelatine to hold the image properly upon the surface. The prepared canvas can be kept for months before applying the silver:

Potassium iodide	80 grains
Ammonium bromide	35 grains
Ammonium chloride	10 grains
Gelatine	60 grains
Albumen	1 ounce
Distilled water	10 ounces

Mix, and gently warm until the gelatine is dissolved; clean the surface of the canvas, if it be prepared for painting in oil, with:

Ammonia	½ ounce
Methylated spirit	2 ounces

Apply with a soft cloth until the greasiness has disappeared, and allow to dry thoroughly; then apply the above solution evenly with a clean sponge, and when dry sensitize with:

Silver nitrate	1 ounce
Glacial acetic acid	½ ounce
Distilled water	12 ounces

Pour a small pool of this in the middle of the canvas, spread all over with a pad of cotton-wool, and in about one minute, and whilst still wet, expose, about one minute is enough for an enlargement of six times, and develop with:

Gallic acid	60 grains
Lead acetate	10 grains
Distilled water	10 ounces

Filter, and apply in the same manner as the silver solution and with the same piece of cotton-wool, for the little silver it contains will give vigor. When development is complete, the enlargement should be rinsed and fixed in hypo solution, four ounces to the pint; then thoroughly washed.

The image, having only a minimum of gelatine, will not strip or blister, and although it may not be entirely satisfactory as a photographic print, it will be all that is required to serve as a base and guide upon which to paint in oil colors.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Dark-Room Devices

F. Shirley of the Southern California Camera Club, is one of those who are always making something (not to be understood in the financial sense), or repairing something he has already made. Knowing there are others suffering from the same malady, others like himself who seem to prefer to spend several days of spare time in making some article, a good one of which might be bought at the store for a half dollar or so, he writes: Ordinarily, I have my doubts about this kind of work being economy, but the inclination to tinker is incurable, and the satisfaction the victims secure is worth something. Recently I made a contrivance to beat seconds, one that I continually use in my dark-room, and one that seems to me to be well worth the trouble. I took an alarm clock and dissembled it far enough to expose its vitals. It was an old one that had outlived its usefulness as a timekeeper, so my instinct of thrift was not pained. I set the works so that the alarm mechanism was free to ring. To the hammer of the alarm I securely attached a light wooden pendulum, some four feet long, and then fastened the mechanism to the wall in such a manner that, when the pendulum was started swinging, a regular tick resulted. I replaced the alarm winding key, and threw the time winding key away, and lastly arranged a small lead weight to the pendulum in such a way that it could be slid up and down. There is a theoretical length for a pendulum to beat seconds, but the knowledge of this will not help much in a proposition of this kind, as several elements interfere, the main one being the difficulty of computing the center of mass in such a pendulum as above described. Experiment will locate the weight at such a point that the device will be accurate enough for all practical purposes. The tick resulting is loud enough to be heard all over the place, and it will run some thirty minutes with one winding.

I have taken great delight in this humble contraption, of which I have constructed two, one for my home dark-room and the other to adorn the enlarging room of the camera club. The latter one I camouflaged with a sheet metal case to make it look as dignified as possible, but the above is a full confession of its ancestry. I wish I might add that the work of the members has shown a marked improvement since its advent, but not being entirely satisfied of this, I will not commit myself to the statement.

Another device which can be constructed from a retired alarm clock is well worth mentioning, although it has had publicity before in the pages of CAMERA CRAFT. It seems to me, however, that the idea is good enough to be kept alive by a word now and then. This is a weighing scales, one consisting of nothing more than a light metal walking beam soldered to the balance wheel of a clock works, after the interfering portion of the mechanism has been cut away with a hack-saw. This beam is supplied with suspended pans at each end, after the manner of the ordinary jewelers scales, and an indicator below to travel over an appropriately inscribed arc. With a set of weights and this apparatus, carefully constructed, weighing of surprising accuracy can be done.

Keep the club quarters clean and orderly. If you break any of the apparatus, report it at once and repair the damage. Think of your own feelings if, perchance, you could not find a whole graduate sometime when in a hurry. Or perhaps the only available safe-light was found broken after you had crossed the city to develop a plate of especial interest. Start the meetings promptly on time. Keep the interest up by having a good program for every meeting, and see that the backward or shy members are made to feel at home. Show an interest in what he is doing and a willingness to help him if you can.

The exchange or "swapping" of ideas is one of the most valuable features of a cam-

era club. Securing them by tricky means and without asking, is not the proper method; particularly so if they are passed along or published before the originator has a chance to do so himself. Such appropriation of one member's little kinks or devices, by another, has caused trouble in many otherwise harmonious clubs. Don't claim everything you see or hear as your own as soon as the other fellow is out of hearing. It is unjust and unfair.

Always have the enlarging equipment just right. Have a good lot of prints on the walls at all times. Have a safe place provided for prints awaiting hanging or return. Keep the back-grounds clean and free from wrinkles, and all members can help in this. Do not designate the enthusiastic member a crabber. If complaints are made, try to remove the cause. The really enthusiastic member seldom makes unjustified criticisms or impossible demands.

Enlarging-Room Hints

W. C. Sawyer of the Southern California Camera Club says: Much more importance is placed upon the shortness of the exposure when making enlargements than such saving of time really deserves, even in quantity production. While it is quite desirable to speed up the work as much as possible, saving a few seconds on each exposure is not the proper plan. An illuminant of high power is useful for quick and accurate focusing, but it is very often the cause of over-printing and a consequent waste of time and material. If better attention is given to a convenient way of handling paper, plates and solutions, to ease of manipulation of the apparatus for quick focusing, to an easy method of cutting the paper and attaching it to the easel, and with a satisfactory illumination of the room, seventy-five per cent of the waste time will be eliminated and much saving in light bills effected.

A simple method of cutting the paper was discovered while working in the club dark-room, which had walls of matched lumber, and the following plan is a development thereof: Place upon the wall a board somewhat larger than the largest paper ordinarily used; although, if the walls are of wood, it is not necessary. Attach near the left side, two narrow strips of sheet brass with a slot between them about a thirty-second of an inch wide. Paint lines, parallel to the strips and to their right, an inch apart. First mark the paper on the focusing easel at one edge only where it is to be cut. Hold the paper against the board so that the mark comes over the slot in the brass and square it up by making the opposite edge parallel to the lines on the board. Then, with the keen point of your pocket knife, cut along the slot between the brass strips.

Importance of Cleanliness

One very important thing in the dark-room is absolute cleanliness: It is not very sensible to spend several dollars, some travel and more thought on a batch of exposures, then have some beautiful negatives, the best of the season—except that they are covered with dust spots, finger marks and scratches.

Is it wise to make a fine batch of 11x14 enlargements only to have them come out all spotted in the sulphide bath because your fingers carried hypo onto them? Rinse your hands thoroughly after they have been in any solution and wipe them on a clean towel, particularly if you are to handle any dry plate or paper.

Safety First

The chemical member says: A rule enforced in all college chemical laboratories, and one equally good for the photographic dark-room is as follows: Never drink from a vessel used for any other purpose. The following rhyme from the *Journal, Western Society of Engineers,* is applicable:

Willie had an awful thirst,
But Willie is no more,
For what he thought was H_2O
Was H_2SO_4.

Clouds With a Duplicator

Another club member, W. C. Jennings, says that he has used an ordinary duplicator to get clouds when the horizon was not complicated and the foreground not light enough to be taken with the same exposure. He uses the f-16 stop when horizon is in the center, a larger stop when there is more foreground, and a smaller one when the sky occupies more than over half of the picture space. He exposes the foreground through the duplicator and then inverts the device for another exposure on the sky.

Disraeli said: "The greatest secret of success in life is to be ready when your opportunity comes." Prepare with W. S. S.

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NEW MEMBERS

4643—W. B. Goolsby, 114 East 8th St., Fort Worth, Texas.
3¼x5½ made with Graflex f-4.5, various papers, made from aeroplane, local views, figure studies, clouds from aeroplane and various others; for anything of interest.
Class 1.

4644—A. B. Willoughby, 2754 Webster St., Berkeley, Cal.
Class 2.

4645—T. Henricksen, Agricultural Experiment Station, Mayaguez, Porto Rico.
Class 2.

4646—Carl Brame, 3rd Infantry Band, Eagle Pass, Texas.
2¼x3¼ and 3¼x5½, developing papers, of typical Mexican scenes, camp life and novelty snaps; for mountain views, hunting scenes, farm scenes, and beach snaps.
Class 1.

4647—James G. Standley, Box 757, Dunsmuir, Cal.
Class 2.

4648—William N. Kline, Jr., 840 Sylvan Blvd., Redlands, Cal.
Class 3.

4649—Eric Stahlberg, 35 Washington Ave., Northampton, Mass.
Class 2.

4650—James L. McCullin, 2703 Bernard St., St. Louis, Mo.
Class 3.

4651—Albert E. Olson, care Clerk's Box P. O., Denver, Colo.
Class 2.

4652—Carl N. Lindgren, Box 64, Cluffield, Sask., Canada.
Post cards and 3¼x4½, various papers, of views and most anything; for lake shore scenes and views, as well as all good photographs. Mostly post cards. Class 1.

4653—Lee L. Bailey, Moline, Kans.
Class 2.

4654—H. A. Latta, Box 305, Hickory, N. C.
Various sizes up to 3¼x5½, various papers, of miscellaneous views, outdoor scenes, studies, etc.; for the same, especially figure studies. Anything of interest accepted.
Class 1.

4655—C. L. Butters, M. D., P. O. Box 317, Thomson, Ga.
Class 3.

4656—Harold S. McGear, 2540 N. 33rd St., Philadelphia, Pa.
4x5 and all smaller sizes, various papers, of snow scenes, landscapes, still life, and miscellaneous subjects; for the same, also portraits and historical subjects. Class 1.

RENEWALS

4233—Harold Sherer, R. F. D. No. 2, East Canton, Ohio.
Class 2.

4498—E. H. Smith, 302 Park Ave., Beaver Dam, Wis.
Will exchange landscapes, any size up to 8x10 (enlargements). Class 1.

CHANGES OF ADDRESS

4405—Louis H. Dreyer, care Fairbanks Co., 49 Fort St., E., Detroit, Mich.
(Was 258 Broadway, New York.)

4472—Harry E. Carpenter, 389 Remington Ave., Bridgeport, Conn.
(Was 90 Willow St.)

4530—J. E. Pugh, Silverton, Or.
(Was Elam, Or.)

4558—R. M. Hart, care Silas Kind, 66 Center Square, Easton, Pa.
(Was Sterling, Ill.)

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

California Camera Club

With a large number of new members recently added to its roll, many plans are being made for the benefit of a greater club. New by-laws have been drawn up and are now under discussion, the old ones no longer meeting the demands of the club activities. In its membership campaign the club has adopted the slogan: "The Biggest and Best Camera Club in the World."

The two-outing-a-month plan has met with unusual success. On the tenth of August club hikers visited Mt. Tamalpais and two weeks later an outing was held on the Spring Valley Water Company's property at Lake Merced. The Outing Committee has been giving instruction in the use of a camera, composition, etc., while, in the matter of finishing, the Demonstration Committee has been affording private lessons, both in the club rooms and in the studio.

In accordance with the program initiated last year, the whist party and dance continues to take place on the third and fourth Tuesday evenings of each month.

V. A. Ulrich, an expert worker in that line, with Marsh & Company, recently gave a demonstration on copying by artificial light. Most members are unfamiliar with this interesting branch of work so that his presentation of the subject was both interesting and beneficial. The month's exhibitions included studies by E. M. Pratt, Sacramento pictorialist, and Arthur Kales, a Los Angeles member of the Pittsburgh Salon.

All navy men interested in photography are invited to avail themselves of the privileges of the club rooms during the stay of the fleet in San Francisco harbor.

Southern California Camera Club

This club invites all photographers, especially visitors to Los Angeles, to attend their Thursday evening meetings. The by-laws provide that visiting members of recognized camera clubs, bringing credentials, may have the free use of its work rooms for thirty days, and such visitors may be elected to membership for six months without paying an entrance fee. Nearly all meetings are held at the club rooms, 522 Wilcox Building, southeast corner of Second and Spring Streets, Los Angeles. The third Thursday evening of each month is given over to some form of entertainment, usually an autochrome or lantern slide show. Members Messrs. Smith and Hogan do some very beautiful slide coloring, and Messrs. Spafford, Hogan and Payne have provided many fine autochrome collections. A number of non-members have favored us with exhibitions of color slides, and to these gentlemen we extend a special vote of thanks.

The Course in Photography, a series of talks and demonstrations, will be continued, and a cordial invitation is extended to all amateurs, both beginners or advanced workers, to join our club. Announcements, catalogues and other photographic printed matter from clubs, societies and manufacturers, will be gladly received.

The Kansas City Camera Club

This Club is now taking on new life. The war took some of its best men and home activities engaged the attention of the others. But the officers are planning an active campaign for the early fall, when the Club will have fine new rooms in the downtown district. The membership is gradually being increased and preparations are being made for the annual exhibition in early January, other clubs being invited to make entries. Correspondence should be addressed to Dr. Maclay Lyon, Secretary, 501 Bryant Building. Dr. R. M. Seibel, the new president, is an enthusiastic club man and is doing much to increase the interest of the members. "Soft-Focus" Sarvent is arranging the equipment for the new club rooms. Such men as Pitt, Mintun, Welker, Sarvent, Graham, Goodrum, Hand and others, insure the putting of the Club on the map in Kansas City, "The Heart of America."

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Associated Camera Clubs of America

The charter membership list of the Associated Camera Clubs of America will close on October first, at which time our organization will have been completed and the formation of lantern slide and print interchanges and also an annual salon will be taken under consideration. Other matters of great importance will be considered, such as increased dues and an initiation fee to non-charter members. Ways and means of increasing the efficiency of the Association will be given particular attention. This association, originated by the Newark Camera Club, gives every evidence of becoming the one much needed organization in the photographic field, and with the support of such clubs and societies as the Orange, New Britain, Portland, Maine, Portland, Oregon, New Haven, St. Louis, Kansas City, Baltimore, Grand Rapids, Columbia Photographic Society of Philadelphia, and the Dartmouth Camera Club of Hanover, New Hampshire, that had joined up to August first, and with the added support of Cleveland, Chicago, Elysian, Elmira, Oak Park, Buffalo, New York and Trinidad, who have reported favorably, the Association is bound to be the organization into which all camera clubs and societies will eventually seek admittance. Any clubs that have not received complete information, through our lacking their address, can secure all data by addressing Louis F. Bucher, Secretary, 878-880 Broad Street, Newark, New Jersey.

Getting The Correct Distance

You all know how hard it is to estimate the distance when you set the pointer on your focusing scale; you all know how many good pictures are not quite what you hoped they would be because the distance was not properly gauged when the camera was set for making the exposure. The objects that you wanted sharp are out of focus and some unimportant part of the foreground is so sharp and wirey that it emphasizes the unsharpness of the real picture. Either that or else everything is out of focus except the clouds and the most distant part of the picture. Look up the page advertisement, the one just in front of the frontispiece in last month's issue and order a MacMillan Distograph from Hirsch & Kaye, 218 Post Street, San Francisco. It will not take you long to save its cost in film alone, to say nothing of the disappointment you will save yourself. You have no doubt made many out-of-focus negatives, any one of which you would gladly give the price of this simple little invention to have sharp and satisfactory. Do away with this trouble once and for all.

A Dealer Suggestion

An enthusiastic "club" man, now a member of the Southern California Camera Club, has a good suggestion to make to dealers in the average small city or large town. And the suggestion is one that is based on his own actual experience in a town of approximately one thousand inhabitants. The idea is that the enterprising dealer should start a camera club made up of those interested, as amateurs, in photography. The start can be of the most modest description; in fact, a club need not lack enthusiasm or value to its members, simply because roomy quarters and varied equipment is provided. The main thing is the helpful co-operation of a number of congenial people with the one common interest that amateur photography provides. Regular meetings are easily arranged and periodical exhibitions of the member's work need present no great difficulty. Rules and regulations can be of the simplest form and a few officers can be elected to keep the club activities in hand. A dealer giving his time and effort to something of the kind will be amply repaid in the increased good will secured, to say nothing of the increased amount of material the members will be inspired to use. Should the dealer be one of those fortunate ones who has, himself, a working

knowledge of photography and the knack of imparting it to others, so much the better. And, he must not imagine that by instructing the amateur in the work of developing, printing and the like, any decrease will be caused in the amount of finishing his establishment is called upon to do. Repeated experiments along this line have proven conclusively that just the opposite is the case. Every successful amateur in a community inspires a number of others to take up photography; and, even if a few do abandon the convenience of the dealer's finishing department, the added numbers more than fill the void.

A Successful Camera Club

To make a camera club a real success, according to Mr. Sawyer of the Southern California Camera Club, all of the members should take especial interest in seeing that the needs of the individual member, perhaps one who does a "different" class of work, is provided for in the matter of equipment. The same opportunity for exploitation should be given the "fuzzy" worker as is extended to the more "regular" camera users, and both should exhibit an interest in the scientific man's productions. The writer believes that every encouragement should be given to the development of original work by the members. Demonstration and the like by outside talent is all right, but go after the talent in the club itself and you will be surprised at the amount that can be brought to light. Do not over-value outsiders just because they cannot see the benefit of parting with the small amount involved in the monthly dues, but give consideration to the ones who have sufficient enthusiasm to join. The too-important ones, finding themselves neglected, will join in good season if only to avoid oblivion.

Illinois College of Photography Notes

Lyman I. Way, now of Madison, Wisconsin, writes us that his business for the year now runs into five figures. Mr. Way was with us in 1909, and the above fact shows that since then he has been improving his time.

One of our former foreign students who enlisted some time ago, has written us that he "has one of those Uncle Sam's uniforms, and it fits fine". He is one of the many adopted citizens of our country who show their patriotism in a practical way.

C. L. Weed of the Smith-Butterfield Company, Evansville, Indiana, is like the proverbial bad penny; however, we are glad when Mr. Weed calls on us for he is always full of optimism. On his last visit he gave a very interesting talk to the student body.

Messrs. John W. Ebersole and R. E. Embleton, who left the College in March, are now getting well established in business at Fort Dodge, Iowa. As a special feature for May they will conduct an amateur contest, in which our own President Bissell and Professor Cook have been asked to act as judges.

It appears that Fred W. Daglish has been in great demand since his recent enrollment. The reason is that Mr. Daglish spent four years "over there" with the Canadian forces, and can give considerable first-hand information that is very interesting.

C. S. Kripp, of Hyderabad, Sind, India, just enrolled with us, after a journey of twelve thousand miles, and being seven months on the road. He left India last September, being held three months in London, as no civilian passengers were taken on any of the ships until a large number of the soldiers were returned to America.

Nineteen years ago, at the Illinois College of Photography, the mysteries of photography were explained to D. L. Lynch, who, we are glad to learn, is now official photographer at the Chicago plant of Armour & Company.

From the New England States comes the news that Wm. H. Hanagan has been elected president of the New England Professional Photographers' Association. Mr. Hanahan graduated from the College twenty-one years ago, and is now a thriving photographer with an enviable business in Hillsboro, New Hampshire.

We are informed that a new book on photo-engraving, "Line Negative Making by the Wet Plate Process", is just off the press. The author of the work is Lieutenant H. H. Fickweiler, Jr., now connected with the Engineer Department of the army. He learned photo-engraving while with us in 1912.

C. W. Dishinger, at one time a member of the College Faculty, is now manager of the thriving Tresslar Studio, Montgomery, Alabama. He states that business is very good and we believe this to be the concensus of opinion of photographers at this time.

XXVI No. 10 OCTOBER, 1919 Price, 10 Cents

CAMERA CRAFT

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CAMERA CRAFT

A Photographic Monthly

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CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXVI OCTOBER, 1919 No. 10

Making the Best of Our Surroundings

By Frank Reeves

With Illustrations by the Author

How often have you heard some one offering, as an excuse for their inactivity in photography, the excuse that they had snapped everything around; or perhaps, complaining of the fact that there is nothing in their locality that will make an interesting picture? If they only lived in the mountains what grand pictures they would make; if they were by the sea they would get some

ON THE RANGE IN THE TEXAS CATTLE COUNTRY

fine water views; or, if they lived in the city they would get so many interesting street scenes. Or again, it was someone bemoaning their fate because they did not live in the country where they could get such excellent landscapes. I guess it is only human nature to be dissatisfied with what one has and to want something different. This not only applies to subjects for the camera, but to photographic outfits as well. If we would only content ourselves with our present equipment, thoroughly familiarize ourselves with it, and make the best of such subjects as are available, I think our kodak albums would be much more interesting to our friends and a greater source of pleasure to ourselves. Mr. Murray's article, "Always Carry Your Camera", in the April number, brings out a specially good point along this line. And with no desire or intent of putting my work or my activities up as a model for others to follow, but with the hope that I may encourage some fellow worker to get more pleasure as well as profit out of photography, I am going to outline some of my own methods.

In order that you may have a full understanding of my picture activity, I must explain that both my time and money are limited therefor. You can find me at the office from eight in the morning until six in the afternoon, with an hour off for luncheon; the regular holidays and occasionally a little extra time are mine, but nothing more than the average worker enjoys. The prairies of Texas, as a photographic possibility, lack the grandeur of the mountains, the fascination of the sea, the bustle of the city, and the attractiveness of the woods. But by keeping always on the alert for anything that may make a picture, I occasionally get something that at least makes a show. Our little city of four thousand people can hardly offer the possibilities of some of her larger sisters, yet I find many scenes of interest. Neither am I the only photographer of the town. One man gives his time entirely to amateur finishing, much of which he draws from surrounding towns: and then we have a man who operates a gallery and does some amateur finishing as well. I am on the best of terms with both, often giving or receiving some slight help from them; and, while I consider it perfectly legitimate for anyone to do work for others, my own pictures take up my spare time so fully that I always refuse to make home portraits or do any developing or printing for others, referring them to the men in town who make a specialty of such work. I do, however, occasionally make a picture of some of my friends' children, in some characteristic poses as they play, but that is hardly the kind of work the local photographer would attempt.

Occasionally some one insists that my finishing is better than they can obtain. This can probably be explained by two reasons: first, I often put in quite a bit more time working to get just exactly the right results than perhaps they would be willing to pay for; second, I don't snap everything that comes along and expect a picture from it. Not long ago I was in a party that had gone out for a little outing, and as usual, I had my camera along. One of them remarked that he was glad I had my camera as he wanted some good pictures; that he had recently exposed over three dozen rolls of films and didn't have but three or four pictures; that he was sure there was something wrong with his kodak. I looked it over, it was of a reliable make, and I could see nothing wrong with it. I suggested that he go ahead and expose one roll. After he

TAKING A GROUP PICTURE OF THE FAMILY OUTING

QUITE AN UNCONVENTIONAL GROUP PICTURE

had done that I exposed another roll, and then asked him to use the third roll according to my suggestions as to what to try for and how to proceed. I took them all home, developed and printed them, and convinced myself that there was nothing wrong with the camera. But I was surprised that he even secured a single picture from the way he went about making them; never a thought as to exposure, light or anything. If it was pretty to the eye he snapped it, and hoped it would be good.

Of course, all of my developing and printing are done after work hours, and to use the minimum of time to get the best results is important. Practically all of my developing is done with a tank. I find that in addition to being much

ONLY A WINDING STREAM AND PATHWAY

more convenient, I can get just as good, if not really better, results on the average with the tank. I use the bath room for loading my plateholders and for filling the tank, and I am free to say I am glad that it is unnecessary for me to stay very long in that closed-up situation. When I first started my picture-making I am afraid that I made myself a good deal of a nuisance through borrowing or appropriating all the available pans, buckets, etc., required in my photographic activities. In fact, it always complicated matters for my picture work to get under way just before a meal was started in preparation, for I was almost sure to have a much-needed vessel. I have learned, however, that if one is willing to put in a little time and stand a very small expense, he can have all the trays needed for washing and fixing prints and plates, and be independent of the rest of the household, as well as on much better terms therewith.

For a long time I used boxes lined with heavy oil cloth, and found them very satisfactory for washing boxes for prints. I have, of late, been making

trays from small wooden boxes and coating them with a waterproof paint. These strike me as being very satisfactory; and, by watching the grocery stores I have been able to find suitable boxes that, cut down, were easily made tight with a few extra nails and two or three coats of Probus paint, but others may find something else equally as good, or even better. I have a place for all of my things, and it takes me only a few minutes to get ready to print; then, when I finish and while the prints are fixing, I put everything away so that I will know exactly where it is when I want it next time. My putting away things seems to be a very popular stunt with the rest of the family; I am inclined to believe they appreciate it.

Now, as to my subjects. I try not to come in competition with the local men, but to make a class of pictures they never attempt, to give my work an individuality; and in pictures as in everything else, something that is out of the ordinary seems to have the strongest appeal. Probably my most popular subjects are ranch scenes, and I am specially fortunate in being able to make

A MOONLIGHT EFFECT WITH THE CAMERA

a good many of that kind. But in this, as in every other branch of photography, a great number of scenes that are pleasing to the eye are very disappointing in a picture. And too, there are many views that are apparently quite commonplace, yet capable of making interesting pictures.

If for any cause there is a parade in town, I take my camera along and make pictures as I watch it pass. Then I make up a set of post cards, as I find them good sellers, put a number on the back of each, and it is surprising the number of calls I have for prints. All I have to do is to make a note of the person's name and enter after it a row of numbers that tells me which cards

are wanted. From a set of about twenty exposures on a patriotic parade, I made between eight hundred and a thousand cards and prints. I am not always that lucky, sometimes selling very few prints, but very seldom does the work fail to pay. Recently a degree team for one of the secret societies came here to take in a large class of candidates. In the afternoon they gave a parade in which the "Tyros" were dressed in very ridiculous and comical ways, my set of pictures showed some of our leading townsmen entirely divested of their dignity and apparently good subjects for the Sunday comic section. I made thirteen exposures on twelve plates, which, by photographic arithmetic gave me eleven printable negatives. In this case there is no room for argument as to whether thirteen is unlucky or not. The town professional photographer was out with a large view camera, and from a street awning made a picture of the entire team, members and candidates. I knew he had me bested in that, so I divided the procession into sections; that is, I go close up to the individual bunches, went along and made pictures covering the entire group. The figures in my picture were, of course, much larger than in the one made by the professional, but those that wanted the entire parade could get it in three of my pictures. If they only wanted that portion around themselves they could get a better picture in one of mine. My eleven negatives gave me a very nice profit; in fact, I would be glad to have such a parade every day if they would all turn out as well financially. In this class of work I find I get better results by making the price very reasonable and working to quantity. Then too, it is important to get one's samples out as soon as possible, as people will buy then that would pass them up a week later.

During the school term I try to get pictures of the various teams and their activities. The players are always glad to keep me in touch with their important games, and with a reasonable price for the work they, as a rule, buy freely. My experience has been that the girls are better buyers than the boys. As soon as any public building is completed I try to get a good picture of it, and even during construction the workmen are often glad to have pictures if the price is a modest one.

Some time ago I decided to make up an album containing pictures of all the principal dwellings and public buildings in town. At the same time I had in mind selling quite a few prints from the negatives. It is a problem to get some houses lighted just right; and when that is assured, Mr. Jones may not be around to say that he wants them, or when you find him the light may be wrong. I have found that it is easier for Mr. Jones to tell you he does not care for a picture of his house when you ask him about it, that it is for him to say no when you have a sample picture to show him. And in most instances I find that Mrs. Jones will help make a sale. Working on this plan of making the exposures when the light seemed to be right for each certain house, and I had the time to get it, I proceeded to photograph the town. It took me some time and a great many people asked me what I was working on. I would reply that I was making an album of local views. Most of them would remark that they would be glad to see it when finished.

Then I printed them all up and took them around. A large per cent of the people said they wanted one, half a dozen, or a dozen. I adopted the plan

A TYPICAL GROUP IN THE LONE STAR STATE

of not accepting an order for less than half a dozen, saying that it would not be worth hunting up the negative and making just one picture; that if I did that I would have to charge quite a bit more for just one print, and only one man turned me down on that proposition. A great many people whose houses were not included, wanted pictures, and I made them order at least half a dozen, allowing them to select from different negatives. Then when I delivered the pictures I included a post card, and often the same customers would

AN EQUALLY TYPICAL GROUP IN THE SAME SECTION

order cards as well. I am not going to argue the ethics of this plan, but I do know that it worked out as paying me a nice little sum for the entire set of negatives. And so far as I know no one felt peeved about it.

Just a few days ago two of the large city dailies asked me for a selection of scenes about our town, with a view of using them in their Sunday Rotogravure section. As I already had most of the required subjects, it is not hard to guess who furnished the pictures, and that meant further profit from this set of negatives.

People often remark that it must take an awful amount of my time to do so much work, that it must be a great burden, particularly as it must all be done in spare moments. But it is my hobby, one to which I can devote such time as my spare hours permit, and such as suits my convenience. Instead of being a bore it is a recreation, one that I can combine with all my outings, and often with my work. Besides, I never have any time hanging heavily on my hands, for I can always find something photographic to do, something that, if not profitable, it is at least pleasant.

A Hiking-Stick Tripod

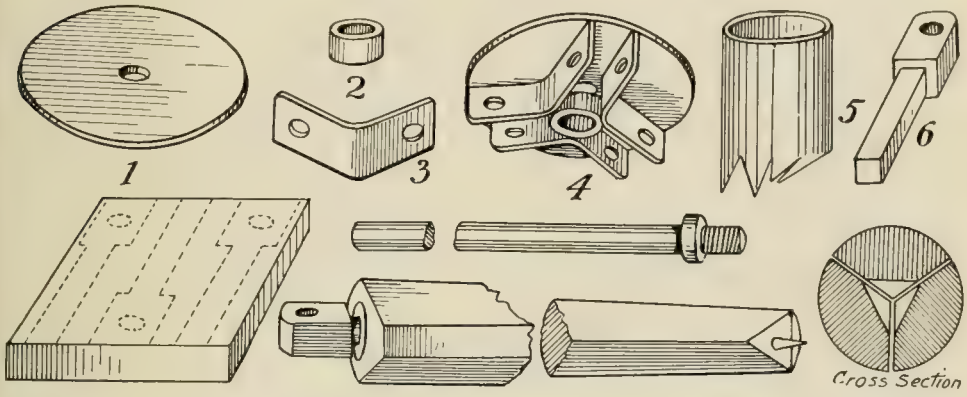
By John Hoeck

With Illustrations by the Author

"Why Not a Tripod" in the June issue, interested me greatly, because I have been using, for the past year and a half, a hiking-stick tripod much on the order of the one described in that little article. I have, in fact, made four such tripods, keeping in mind a combination of strength and lightness. The heaviest one weighs a trifle over thirty and the lightest one only twenty-four ounces, about the same weight as the loaded 3A Kodak. They range in diameter from one and five-sixteenths to one and one-half inches, and in length from fifty to sixty-one inches.

In making these tripods I selected a straight grained Oregon pine board, about one by eight, and the desired length. This I planed smooth on one side and to a one hundred and twenty degree angle on one edge, afterwards ripping off one leg; repeating the beveling and ripping off for the other two. Smoothing up the sawed edges, the three were tied together and chopped and planed down to the desired roundness and diameter. Determining which end should carry the top, the other was made slightly tapering, and the inner corner of the three components were cut off at an angle, as shown in Figure 1, to be later fitted with the barbs shown, made by driving in wire nails and filing off their heads to form points. When used as a stick or staff, these ends are covered with a snug-fitting ferrule, one that can be removed and pocketed when the camera requires a support. This ferrule, shown in Figure 5, is made of a piece of

seven-eighths inch brass tubing with one end cut into six or eight points that are to be bent inward, as shown, to give a wearing surface and to retain the one or two thick leather disks in the bottom of the ferrule. I keep a few inches of this tubing on hand and find it but a few minutes work to replace any ferrule that may become worn out or lost.



The tripod screw is made from a piece of scant quarter-inch round brass rod, about six inches long; the extra length brings the end down where there is more spread of the legs, and therefore making it easier to tighten up. The end must be suitably threaded to fit the screw socket in the camera, and next to the threaded part is fitted a tight ring of wire or sheet brass to work between the under side of the top plate and the ring thereon, holding the screw in the head. This means that the ring on the screw must be soldered on and the screw placed in position before the wider ring of the top is soldered in place. If a small groove is filed in the screw and the wire ring set therein, it will be more strongly attached. The inner angle of each of the three legs are cut away, as shown in Figure 0, to make room for this long screw when the tripod is closed. Except for cutting the thread on the screw, which any garage or machine shop will do, all the work is done with ordinary hand tools, the metal parts requiring only the use of a hack-saw, a pair of snips, and a file. The soldering together of the parts making up the head can be turned over to a tinsmith or jeweler if one's own equipment or skill does not seem equal to so simple a task.

The circular piece, the three angle pieces, and the flat ring or collar, Figures 1, 2 and 3, going to make up the head proper, as shown in Figure 4, are cut from sheet brass, about No. 19, Stubbs standard gauge, or about three sixty-fourths of an inch in thickness. The holes in the angle pieces are drilled to fit the small bolts, which, in my case, were commandeered from some old pattern dry cells in which they formed binding screws in the exposed ends of the carbons. These are about three-quarters of an inch long with a diameter of about one-eighth inch; and, similar ones can be purchased for a few cents. The dogs that attach the legs to the head are sawed from some flat brass and afterwards filed into the shape shown in Figure 6. This material should be about a quarter of an inch or a little less in thickness, and it is best to drill the holes before cutting

AS A HIKING STICK AS A TRIPOD

them to shape, as it is easier to get them perfectly true. It is also advisable to drive small ferrules, cut from thin half-inch brass tubing, into the wood so that they will surround the hole bored in the ends of the legs for the reception of the dogs. These holes should be bored of such a size as to necessitate driving the dogs in and the brass ferrules will prevent the wood from splitting.

Anyone who has passed beyond the snap-shot stage must realize the advantage of a camera support, and I find this form of tripod much more convenient to carry, and to set up when wanted, than those generally on the market. One such as I have tried to describe is, of course, not invisible, but once out in the open it becomes more of a help than an incumbrance, something that can hardly be said of the usual form. Its lightness prevents its becoming a burden, even on an all-day hike, and the quickness with which it can be set up or moved about makes it very desirable for home indoor work. I am quite sure that any manufacturer who would put such a tripod on the market would reap a small harvest, particularly as a good tripod of this description could be turned out at a quite reasonable price if made in quantities. But until some firm does put one on the market we will have to make them for ourselves, and the above description should enable the reader to do so with every prospect of turning out a strong and serviceable piece of apparatus.

We are not sent into this world to do anything into which we cannot put our hearts. We have certain work to do for our bread, and that is to be done strenuously; other work to do for our delight, and that is to be done heartily; neither is to be done by halves or shifts, but with a will; and what is not worth this effort is not to be done at all.—RUSKIN.

Aerial Photography at the Front

By Major Edward J. Steichen, A. S., A.

(Chief of Photographic Section, U. S. Air Service, A. E. F.)

Illustrations by Photo Section, U.S. Air Service, A.E.F.

The consensus of expert opinion, as expressed at the various inter-Allied conferences on aerial photography, is that at least two-thirds of all military information is either obtained or verified by aerial photography.

Marshal Foch withheld his final decision, governing the operations immediately following the St. Mihiel offensive, until his staff had received and examined the aerial photographs which confirmed the nature and strength of the new line established by the victorious American troops. General Pershing has stated that the aerial photograph is the most reliable source of information available to the higher staff officers.

The average vertical aerial photographic print is, upon first acquaintance, as uninteresting and unimpressive a picture as can be imagined. Without considerable experience and study it is more difficult to read than a map, for it baldly represents nature from an angle we do not know. The oblique aerial picture, especially when taken from a low altitude is more readily comprehended, and sometimes striking pictorial effects are produced. The vertical photographs made by the day bombing squadrons occasionally present a spectacular and dramatic interest in addition to their value as a record of the bomb raid.

There has been a tendency to wrap the technique of aerial photography in a veil of secrecy and mystery. The attitude may have been useful in stimulating curiosity, but there comes a time when such a pose seriously interferes with the free development of a new process. While aerial photographs can be made with a vest pocket kodak, it is obvious that, where special conditions prevail, new instruments and methods must be created to meet these conditions. The work accomplished along these lines during the war, stands as a remarkable scientific and mechanical achievement. This achievement, coupled with the courage, skill and endurance displayed in taking and producing the amazing quantity of photographs required, makes up a chapter that is second to none in the annals of photography.

A good aerial photograph compares favorably with the best technical landscape photographs. The latter can be leisurely made from a carefully chosen point of view, with a camera firmly set on a tripod, and with lens and exposure conditions offering a considerable latitude. The military aerial photograph is made with a heavy cumbersome camera, more or less successfully suspended in the fuselage of an airplane traveling through the air at a good hundred miles per hour. The fuselage receives all the vibrations of a powerful

motor whirring off more than a thousand revolutions a minute, as well as the thumps and bumps of air-pockets and exploding enemy anti-aircraft shells.

The ground photographer chooses his weather; the General Staff chooses the aerial photographer's weather. The weather conditions during both the Argonne and St. Mihiel operations were exceptionally poor. The most favorable days were crammed with photographic activity, and even days with barely enough light to produce the faintest trace of an image on the photographic plate had to be "photo days."

AN OBLIQUE OF MONTFAUCON IN THE ARGONNE SECTOR. By Photographic Section, U. S. Air Service, A. E. F.

Most of the long distance photographic reconnaissance missions were the work of the First Army Observation Group to which was attached Photographic Section Number two. I do not believe that there was a better or more efficient outfit for the producing of aerial photographs in any of the combatant armies. Throughout the entire period of operations the enemy never was able to carry on long range reconnaissance with anything like the system or regularity which prevailed here.

The photographic missions went out on schedule, like an express train service. The "big price" was often paid, but from all available data the enemy more than "got his" in return, and also learned to know this group, not only

as an observation unit but as a formidable fighting machine. Their photographs were all made from an altitude of about five thousand meters, and the quantity and quality of the work produced was remarkable.

Photographic reconnaissance is a most difficult and ungrateful part of aerial observation. It gets more recognition and credit from the enemy than any one else. Captured enemy documents indicate that their General Staff was very much worried about the Allied aerial observation, and particularly the planes with the all-recording camera soaring miles up in the air overhead.

The American photographs were practically all produced with 18x24 centimeter (about 7½x9 inches) cameras. These cameras were simple metal boxes, fitted with twenty-inch lenses and focal plane shutters; the plates being carried in magazines with a capacity of twelve plates. These cameras, and as a matter of fact, eighty-seven per cent of all the photographic equipment and materials employed at the front, were purchased in France.

During a mission over the lines the operation of the camera took up all the attention of the observer. From the beginning of our experience, it was clear that an automatic camera was not only desirable, but would eventually become a necessity. All of the Allied armies had been working on a camera of this kind; numerous interesting experimental instruments had been evolved, but the production of a satisfactory apparatus was slow in materializing. Only during the last month of the war were we able to place fifteen automatic cameras in operation over the lines.

VAUX—IN CHATEAU THIERRY SECTOR. By Photographic Section, U. S. Air Service, A. E. F.

These cameras were ingenious instruments, invented by Lieutenant De Ram, and were built under his supervision in a small shop near Paris. They were entirely automatic; could be set for any given interval of exposure, and simply required to be started when the airplane reached the region to be photographed, and had a capacity for fifty exposures. In spite of the fact that these first cameras were new in principle and that they could scarcely have been considered final or complete, results were produced that were not only valuable in themselves, but pointed the way to new and hitherto impossible accomplishments in aerial photography. Unfortunately, the camera could only be installed in the Salmson planes, as the U. S. D. H.-4 planes then in France were designed to carry the small cameras used in training and not the larger instruments in use at the front.

On one occasion two planes were sent out on a photographic mission; one was equipped with a De Ram automatic and the other with a hand-operated camera. During the mission these two planes were attacked by seven enemy ships; two of the enemy machines were brought down, the remaining five quit. The observer in each plane naturally made good use of their machine guns, but the plane with the automatic camera also continued ticking off pictures throughout the fight, and they brought back a perfect reconnaissance without a single gap in the series.

The significance of this kind of a performance is even more important than the result, and with the prospect of soon receiving similar and possibly better automatic cameras that were being produced in America, there is no doubt that within a few months aerial photographic methods would have been completely

A CHARACTERISTIC FRONT LINE PHOTOGRAPH. By Photographic Section, U. S. Air Service, A. E. F.

changed. As it was, these few De Ram cameras were the first entirely automatic cameras successfully employed by any of the Allies over the lines.

The automatic camera is not only a logical factor in mechanical efficiency, but it eliminates an unnecessary risk of life. This is exemplified by the photographic reconnaissance of the Ninety-ninth Squadron, which came to be known in the Photographic Section as the "Thirteenth Hour Mission," the pictures having been made about one o'clock. The Intelligence Staff had made an urgent request for photographs of a certain part of the Hindenburg system, but weather conditions delayed this work for some time. Several attempts were made, and finally, one of the planes ran into a clear space over the prescribed area, but at the same time a group of enemy planes appeared.

MINE CRATERS—ARGONNE. FORMER SITE OF VILLAGE OF VAUQUOIS. By Photographic Section, U. S. Air Service, A. E. F.

Both pilot and observer realized the importance of getting these pictures, and the observer, deliberately disregarding danger, kept on operating his camera and completed the mission. The pilot, though slightly wounded, was able to get his riddled ship back home.

When the plane landed, the observer was found dead, his body fallen forward

against the camera. A bullet had gone clean through the camera and then through his heart, but orders had been complied with. The magazine containing the plates were intact, and when developed the "Thirteenth Hour Mission" produced one of the finest sets of photographs made in the American Expeditionary Force.

When the airplane returns from a photographic mission the real labor of the Photographic Section begins. The greatest speed compatible with photographic quality is desirable. The exposed plates are hurried to the laboratory, developed, washed, and dried, then two proofs are made from each negative. These are identified, located on the map, and given a preliminary interpretation. Sometimes this interpretation reveals information that is promptly reported to Headquarters, over the telephone.

These first prints were normally produced in from one to two hours. In urgent cases, when chances could be taken with quality of results, this time was considerably shortened, the record being twenty-four finished prints, from the first twelve negatives developed, delivered to the Branch Intelligence Officer in slightly less than half an hour after the plane had landed on the field. Such speed was not often required or encouraged. It was, furthermore, often impossible, due to lack of transportation for the heavy plate magazines from the field to the laboratory, particularly when the latter happened to be located at quite a distance.

The real speed problem consisted in getting out the great mass of prints required from the negatives made each day. In this connection the American Photographic Service set a pace which was not equalled. The printing record goes, by a small margin, to Photographic Section Number One, which produced seventeen thousand prints in one day of sixteen actual working hours.

This would be an achievement if the work had been done in a perfectly equipped laboratory; but, under the primitive conditions at the front and with all the water carried in buckets from a neighboring well, it is another one of the many examples indicating that the American Expeditionary Forces made good chiefly on the inherent ability of the American soldier, plus his doggone, go-to-it, stick-to-it ability.

The only laboratory facilities a photographic section was ever reasonably sure of was their photographic truck and trailer, which latter contained a tiny dark-room and drafting-room. The dark-room served admirably for plate development, and sometimes for making proofs; but something had to be found, stolen or imagined, to serve as a printing laboratory, and a cow-shed or a dug-out was often called into service for this purpose.

In July, during the Chateau-Thierry offensive, a photographic section had to resort to a tent for a work-room. Inside of one end of the tent a wooden framework was set up and this covered with tar-paper and opaque curtains to make it light-tight. It was also just about as air-tight, but men worked steadily, in shifts, in this hotbox for six consecutive days and nights, and came out alive. The three prints referred to by the young lieutenant of Vaux came out of this "laboratory," and so did all the other American photographs that were used in the Chateau Thierry operations.

AERIAL PHOTOGRAPHY AT THE FRONT

The secrecy involved in the preparations of the Argonne offensive made new and unexpected demands on our photographic service. Late one afternoon General Mitchell called for another photographic section. Within an hour's time the nucleus of a section was organized and equipped from such casual replacement personnel as was available in the vicinity of the First Air Depot. These men were all just fresh from the training schools and without any previous experience in the field. They traveled all night and got installed in an outhouse of a brewery at Ligney-en-Barrois by daybreak, promptly set up shop and commenced work like old-timers.

At ten o'clock of the same morning, on reporting the arrival of the section to the general and being questioned as to how long it would be before this section would be in shape to produce, I was able to report that one thousand prints had already been delivered. These boys kept at it for five days and nights, without more than four hours sleep out of any twenty-four and produced over fifty thousand prints. They needed no urging or encouragement other than being told that the prints were wanted for their "buddies" who were about to go over the top on the biggest job yet.

Captain A. W. Stevens, while Commanding Officer, Photographic Section Number Six, volunteered to do several particularly difficult missions while in the region of Fismes. He mounted his camera on the machine gun tourelle and made the pictures from an altitude of but a few hundred meters. Numerous dangerous and troublesome machine gun nests were located on these pictures, which all previous photographs had failed to show.

His work, as well as the photographs taken by several of the other non-combatant photographic officers, present a conclusive argument that in all cases where special photographic requirements or conditions have to be met, the trained and experienced photographer is a better man for the work than the regular aerial observer.

These aerial photographs, which have rendered a signal service during the conduct of the war, are now an historical legacy to the nation, ready to serve future generations as an unequaled historical document of the great war. They represent neither opinions nor prejudice, but indisputable facts.

The practical experience gained by these photographic soldiers in learning to surmount all kinds of technical and material difficulties, coupled with the excellent photographic training they received at the specialized schools in America and in France, brings them back to America as an asset to American photography. They represent a new and specific value to the American photographic industry, if this industry will be shrewd enough to recognize their worth.

After the signing of the armistice we made a series of aerial photographic mosaics and oblique photographs of all the important American Expeditionary Force, camps, and construction activities for historical records.

A recent experiment in locating, by aerial photography, areas infected by the boll weevil in Southern cotton fields, is another example of the innumerable large and small possibilities which suggest themselves for the exploitation of this process for commercial and educational purposes.—*U. S. Air Service.*

Using the Film Camera

By Harry F. Blanchard

With Illustrations by the Author

The other day I was out making a few negatives with my 3¼x5½ Ansco Speedex camera, one that enables me to make snapshots on cloudy days and get perfectly timed negatives. It was one of my regular Saturday afternoon hikes, and, as usual, I gained the acquaintance of several young amateurs; these particular ones were engaged in trying their luck at making pictures under a shady tree. And mind you, they were making all snapshots in this shady spot, giving from one-twenty-fifth to one-fiftieth of a second exposure. I knew at once that all their exposures would be complete failures, as far as getting any good negatives was concerned, and so, finding they did not resent my efforts, I did what I could to get them started on the right road. I have always thought that it was well worth while to help the other fellow out, when one can, and possibly save him lots of time and many dollars in spoiled negatives.

I have, during the last two months, been collecting a set of illustrations and getting this article together, trusting that they may be of some help to others

THE HOME PLACE—Dark day, stop f-16, three seconds exposure with camera held against tree. Wind blowing yet quite sharp

AT THE DOCK—Strong light reflected from water, stop f-16, one-fiftieth second exposure. Over-exposed because of added light

THE STAIRWAY—In shade, stop f-128 to get full detail from front to back of stairs at top, three seconds exposure

A LANDSCAPE—Soft light, stop f-22, one-tenth second exposure, which was too long for camera held in the hand, hence blurred

THE ORANGE—Bright sunlight in late afternoon, portrait attachment, f-6.3, one-twenty-fifth second exposure

IN DOUBT—Exactly same conditions except that camera was moved about eight inches nearer to the subject for sharp focus

who go out making photographs with a film camera. The illustrations, with the data as to their production printed beneath, will, I believe, be of more interest than a like number of pages of solid reading matter.

As the first question always is: What kind of a camera do you use? I will answer by saying that, while there are a number of good film cameras on the market, my own selection is a 3¼x5½ Ansco camera, fitted with an Ansco anastigmat lens working at f-6.3, set in an Ansco Speedex shutter, which has speeds from time and bulb exposures to the one-three-hundredth of a second, and I find this latter speed fast enough for all ordinary fast-moving objects.

In the first illustration we have a picture of a little child, a subject that is usually the first selection that we make if we happen to be in the vicinity of any children, and this was made with the equipment mentioned, except that a portrait lens was slipped on over the regular lens to permit of getting nearer to the subject. The focusing pointer on the camera bed was set at six feet, that being the closest one could get to the object to be photographed unless one of these portrait lenses was used in connection with the regular lens that comes fitted to the camera. After placing the portrait, or supplementary lens, as they are sometimes called, over the regular lens, I was able to get closer to the sub-

WATCHING THE AEROPLANE—Six feet from camera, good light, stop f-16, one-twenty-fifth second exposure

ject and this picture was made at a distance of about four feet, instead of six feet, thus securing a much larger image. The lens was stopped down to f-16, and an exposure of one-twenty-fifth of a second was given, in bright sunlight, late in the afternoon. This would be called a very good picture by most amateurs, but if you will examine the illustration a little more closely you will find that it is a trifle out of focus or blurred to a soft effect, and this tells us that the camera was not quite the proper distance from the child. To remedy this, we must get a little nearer to the object to be photographed and in the second or companion illustration you will notice that the child's face and little sweater jacket is very sharp and clear, the picture being made under the same conditions as the first, except that the camera was brought about eight inches closer to the child, thus making the negative sharp and clear, showing that the nearer distance from sitter to camera was correct.

It is quite necessary, when making exposures, to get the correct distance

TAKING THE AIR—About fifty feet from camera, stop f-8, one-one-hundredth second exposure to stop motion. Under-exposed and lacking in detail

"TEDDY"—Two feet two inches from camera, in shade, portrait attachment, f-6.3, one-twenty-fifth second exposure. Shows that the distance was not rightly judged

THE GOAT—Three feet from camera, heavy shade, portrait attachment, stop f-16, one-twenty-fifth second exposure

THE TWO TOGETHER—Six feet from camera, hazy day on water, stop f-8, one-fiftieth second exposure

THE BUTTERFLY—Two feet two inches from camera, portrait attachment, f-16, one-fiftieth second exposure

from the object to be photographed so that it will agree with the number of feet marked on the focusing scale. Care in this will save one many spoiled films. As an example, take the third illustration, "Watching the Aeroplane". In this you will notice that the children standing are sharp and clear, while the little child that is sitting is blurred; that is its head is not clear, due to her having moved her head just as the shutter was snapped. This picture was made in bright sunlight, late in the afternoon, lens stopped down to f-16, exposure one-

BIRD HOUSE—About fifteen feet from camera, bright sun, stop f-16, one-twenty-fifth second exposure, account dark color

A LANDSCAPE—Well lighted, near midday, no heavy shadows, stop f-22, one-twenty-fifth second exposure; a sharp and clear picture

twenty-fifth second, distance six feet. Had this same picture been made two hours earlier, one-fiftieth of a second would have sufficed, and the child's head would not have been blurred, as shown with the slower speed.

In the picture of the boat at the wharf, you will notice that the result appears somewhat flat, due to over-exposure. The photograph was made in bright sunlight, stop f-16, one-fiftieth of a second exposure; distance from objects to camera, about one hundred feet. The over-exposure was caused by the reflection of the sun's rays from the water. Under such conditions a good photograph, fully exposed, could have been taken in one-one-hundredth part of a second. It is well to remember that in making photographs of objects on a body of water, such as a pond or lake, the diaphragm can be closed down to a much smaller opening than when making the same kind of photographs on land, as the reflections from the water will add from fifty to seventy-five per cent to the light rays that are thrown onto the objects.

The picture of the stairway, another illustration in the same group, was made with the diaphragm stopped down to f-128, and about three seconds exposure given. This was taken in the shade in late afternoon, distance from camera to stairway was about seventy-five feet. The object of closing the diaphragm down to such a small stop was to get more detail by keeping both top and bottom of the stairway in sharp focus.

I have found that by observing only a few general rules I have obtained better results than by making use of too many of the possible variations in stops and shutter speeds. I use only a few different shutter speeds and diaphragm openings in making most of my exposures on film. In the first place, it is almost impossible to make a fully exposed negative, one that will give a fairly good print, when the subject to be photographed is in the shade or when working on a heavily clouded day, unless a lens is used that has a working aperture of at least f-6.8, using the camera in the hand. One has, however, to do the best he can with the outfit that he has, and as most film cameras are equipped with lenses that work at a speed of only f-8, and in some cases even smaller, I will tell you how to get sharp and clear, fully exposed negatives therewith.

Working in bright sunlight, with the sun shining on the subject to be photographed, good results can be secured by exposing at f-16 with the speed indicator set at one-fiftieth second with the subject from fifteen feet to any greater distance from the camera. In making a closer view of a person or a small group, use a shutter speed of one-twenty-fifth of a second. The faster speed will sometimes give a good negative, but the slower speed will help out on the shadow side of the faces and thus assure a better print. When making exposures with a bright sunlight, shutter speed of one-one-hundredth of a second, f-8 or f-11 should be used, working under the same conditions as with the speed set at one-fiftieth or one-twenty-fifth of a second and the larger stop. If you are fortunate to own a camera equipped with an f-6.3 lens, you can make exposures with a bright sunlight, shutter speed of one-one-hundredth of a second, when the f-6.3 lens is stopped down to a smaller opening, the same as the f-8 or f-11 lens, the high grade anastigmat does not work any faster than the slower

or f-8 lens. Making pictures in the shade and using a diaphragm opening no larger than f-8, one must rest the camera on a tripod or some other stationary object, as it is next to impossible to make a good clear photograph, holding the camera in the hands and using a shutter speed of less than one-twenty-fifth of a second, as the slightest movement of the hands or body will cause the picture to be blurred. When making pictures in the shade, out of doors on cloudy days when the clouds are not too black and heavy, rest the camera on something solid and good clear pictures can be made in one-fifth of a second with f-8 stop. When the clouds are black and very dark, one-half to one second should be given; and, with the stop closed to f-16, give from one-half to two seconds exposure under the same conditions. When the lens is stopped down to f-32, the exposure should be twice as long as with f-16, and so on down the scale.

Pictures made with small openings are much sharper than those made with the larger ones, so for that reason I always use the smallest allowable shutter opening for the slowest shutter speed that will arrest the motion of the object that is being photographed, if moving. With moving objects, such as people walking and ordinary street scenes, a speed of one-fiftieth second, with a lens opening of f-16, will do the trick very nicely; but on fast-moving objects the f-11 or f-8 stop and a shutter speed of at least one-one-hundredth of a second

THE TELEPHONE—Six feet from camera, indoors, dark green walls, portrait attachment, stop f-6.3, four seconds exposure

THE MAGAZINE—Six feet from camera, indoors, light from two windows, stop f-8, four seconds exposure without portrait attachment

should be used so as to arrest the more rapid motion of the subject. For very sharp pictures, have a good light, rest the camera on something, stop the lens down to f-32 or one of the smaller openings, according to subject; and, with the shutter set at one-fifth second, you will find that you will get wonderfully sharp negatives. They will, of course, be still sharper if the lens is stopped down to f-64 and one-half or one second exposure given. The illustrations with this article carry, under each picture, the data and conditions under which each was made, and by studying these and using your own camera in making other exposures with like shutter speeds and lens openings, you will find that your results will be better. A little care and thought in this direction will well repay you for the effort and you will avoid making many poorly exposed films.

All the illustrations were made with my favorite Ansco Speedex camera, post-card size, and the Ansco film was used exclusively, as I find it helps out wonderfully in dull or hazy weather. The prints were made on Cyko paper, there being a grade to suit the varying kinds of negatives that are sure to result from even one's best efforts.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

THAT ONE MINUTE DEVELOPER: I want to say, for the benefit of readers who may overlook the formula for a one minute developer, given in "The Amateur and His Troubles" in the July issue, that I have given it a thorough trial and find it excellent. I have tried all kinds of formulas during my ten years in the photographic business; and, until I tried this one, my favorite was a pyro formula of fine quality. This formula for a one minute developer was tried on both plates and film and any other reader giving it a trial will adopt it, I feel quite sure. It saves time, saves expense, as it can be used over and over again, and I doubt if it can be equaled for good results.—J. C. Cooper, Detroit, Michigan.

EXPRESSION OF THE EYES: Not so long ago I awoke to the fact that asking the sitter to look or fix the eyes upon a certain spot immediately resulted in an undesirable expression. The picture sliding up and down on a rod has so long been a tradition with the profession that one could hardly be expected to question its suitability. But try it on some sitter whose normal expression is well known to you and its faults will at once become apparent. Try, instead, a group of pictures on the wall and observe the difference. True, the eye will perhaps roll just a little, but the motion will be so slight as to be unnoticeable, while the head will not move in the least. The real truth of the matter is that the travel of the eyes encouraged by the group of pictures, will result in a slightly wider-open effect, certainly a less strained one, that is most desirable. In addition, the larger number of pictures is more interesting than the single one and this also conduces to less constrained look. Try it and you will be convinced of its importance.—C. D. E., Rhode Island.

CAMERA CRAFT

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Boosting Your Home Town

Why is it that the average photographer so completely overlooks, so persistently ignores, the possibilities that his craftmanship presents in the way of boosting his home town? Pictures are the universal language and the camera is the greatest talking machine every devised. Pictures will get attention and will carry conviction where the printed page will have but little effect. Your home town may, perhaps, seem rather slow and uninteresting, viewed as you see it day after day; but, during the year there are days on which much could be done in the way of securing pictures of interesting scenes. Your town, as you go about it with unseeing eyes, presents little that is pictorial or interesting, but try the experiment of going out with the determinaion of finding views that are pleasing, vistas that are inviting, scenes that have interest. Inviting homes, prosperous farms, enjoyable drives, typical landscapes; all these make pictures that are effective and frequently more so than the stereotyped views of the "city hall" and the high school building. Agricultural activities, business enterprises, athletic contests, celebrations, town gatherings, construction work; these and many other subjects are constantly being presented. And they are presented to the amateur with his kodak, as well as to the professional with his more complete equipment. But neither seem to appreciate the opportunities such material places at their disposal.

Of course, making the pictures is not all the work. They must have distribution; they must be gotten into the hands of people whom they may interest; people who might be influenced by them; people whose good opinion is desired. This is really the easiest part of the business. Good pictures, pictures such as we have in mind, once made available, find distribution and find it quite easily and naturally. They are constanly required for one purpose or another. The ever-present post card is still in good demand. Real estate firms, transportation companies, magazine writers, publishers, promoters, private individuals; all these and others are only too glad to have good pictures that tell of the attractiveness of any given section of the country. Yet these same people find it practically impossible to get such pictures when they are wanted. The post-card publisher must send a man to the town and use what his camera may happen to secure during a brief, and perhaps, ill-timed visit. The other possible users, not caring to incur the same risk and expense, simply get along without the pictures they would otherwise be only too glad to use. Perhaps the next town affords some choice in the way of available pictures, and it gets the publicity, despite the fact that your own town and its surroundings are more deserving.

If you are a professional photographer show your fellow townsmen that you have the ability to see pictures where they perhaps fail to recognize them. Show them that you are interested in advertising and boosting your locality

through your skill as a photographer. Show them that you appreciate the value of photography along other lines than that of portraits at so much per dozen. If you are an amateur, show your friends and acquaintances that your skill has greater possibilities than the gratification of your own personal desires in the way of pictures. Or better still, make the securing of a good set of interesting local "views" your personal desire. If the professional photographers of your town do not interest themselves in the matter, make small enlargements of your best subjects and get your local bookstore to carry them as samples of what is obtainable if wanted. Make up small albums that can be sold at a moderate price and see if they cannot be disposed of, particularly during the Christmas season. Good photographic post cards are always salable, even with a generous supply of the cheaper lithographed ones being offered, particularly if the subject be some recent local event. Inexpensive calendar mounts make it easy to dispose of endless numbers of these local views to residents desirous of sending some belated reminder to their relatives and friends in other sections. Business houses, particularly those that are reaching out after business at a distance, are frequently only too glad to use such local views as illustrations for their printed matter. Literary workers can often be located and easily induced to avail themselves of a good set of related pictures. No great monetary return is to be expected, but one's reward should lie in the gratification found in doing something to boost the home town. And any photographer who cannot see the value therein has little claim upon the consideration of his fellow citizens. That they have not done something along the line pointed out is simply the result of oversight on their part, we feel quite sure.

Mr. O. C. Reiter on the Coast

Mr. Reiter, so well known to all pictorial photographers by reason of his untiring efforts and uniform care and courtesy in the behalf of the annual Pittsburgh Salon, paid us a visit during the early part of October. His energy and enthusiasm in anything he undertakes extends even to his vacations and the amount of ground he has been able to cover and the number of interesting events he has had the good fortune to "cover" during his trip, is truly remarkable. We were more than pleased to be able to become more closely acquainted with one who long ago became much more than a correspondent and trust that his visits to the Coast will be more frequent.

President and Mrs. Bissell Here

Following out their annual program, President and Mrs. Bissell of the Illinois College of Photography, spent several weeks, during September and October, visiting their daughter, Mrs. J. F. Magee and family, of this city. As usual, an enjoyable vacation was spent and both seemed to be as sorry to leave as their many friends were to have them depart.

Professional critics are incapable of distinguishing and appreciating either diamonds in the rough state or gold in bars. They are traders, and in literature know only the coins that are current. Their critical laboratory has scales and weights, but neither crucible nor touchstone.—JOUBERT.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Where We Stand In Color Photography

The circumstances of the past four and a half years have necessarily been very unfavorable to progress in arts such as that of color photography, and therefore there may be many readers of these lines in distant parts of the world, for whom, at the present time, the so-called "color plates", producing color transparencies, stand for what they understand by "color photography". But these screen plates, the Autochrome and the Paget, admirable as they are, represent only a special form of a color photographic process, though certainly for the purposes of the ordinary photographer they are the chief materials for the making of photographs in natural colors. Hence some review of what has been done and of what may be done along other lines may be of interest to many whose acquaintance with color processes is of comparatively recent date.

There is no need on this occasion to go back as far in the history of color photography as the processes chiefly due to the inventive and mechanical genius of F. E. Ives, now of New York, except to say that the optical color effects which were produced by his Kromskop and lantern Kromskop were probably as perfect renderings of color as have ever been produced. Yet beautiful as they were, public taste naturally asks for something more tangible than an image upon a lantern screen or the optical assemblage of these separate images in a viewing apparatus. The public wants, or thinks it wants, prints in color, and still nurses a qualified dissatisfaction that the results by the autochrome and Paget processes are obtainable only as glass transparencies. Here, perhaps, a word may be said on the purely human element in the case. We need to distinguish, in forming an estimate of the value of any process of color photography claiming to yield paper prints, between the requirements of the purely amateur photographer and of the people who would use such a method for commercial purposes such as portraiture, etc. The amateur undoubtedly would welcome with delight a color process, even one with imperfections if it involved no more delicate manipulation than that necessary in ordinary black and white photography. In the case of the professional maker of portraits, it is to be considered that at present he has at his command processes of coloring which in many cases are not expensive and which, moreover, possess the very greatest latitude, enabling him to produce results beyond the powers of a hard and fast color process and for commercial purposes more useful. In judging the results by any new color process the judgment must be entirely on their merits, and after elimination of any kudos attaching to them from the fact that they are made by purely photographic methods instead of by the skill of a colorist. One could perhaps sell color photographs for a little while as curiosities, but the experiment has been tried, with the result that the public was found to judge always by results and was not particularly concerned as to how they are got.

When we review the methods which have been used for making actual color photographs on paper by the so-called subtractive processes, we see that a method capable of being reduced much more fully to a working system is necessary before any such process is likely to come into general use either by the professional or the amateur. No doubt many readers of this article have heard of color prints by the Sanger-Shepherd process, though few no doubt, unless they have worked the process for themselves, have seen any. A process capable of very fine results, but calling for a degree of care and observance of detail beyond the inclination of the amateur in these hurried days and commercially too elaborate for the professional. Very much the same may be said of the making of three-color prints by the carbon

process which also, in expert hands, has yielded altogether beautiful results. In the form of the Raydex process, in which pigmentation is done according to the ozobrome method, three-color carbon printing has obtained a measure of simplification, one element in which is that the printing is done in the first instance on bromide paper and does not require daylight at any stage. When we have mentioned these three processes, we have perhaps singled out those which yield beautiful three-color prints from the sets of color-sensation negatives, but which nevertheless are processes for the few. We should hardly be inclined to include Pinatype among them for the reason that the best three-color prints by which this process which we ever saw had a "dye-y" look. The process for the purposes of three-color printing may, at any rate, be said to be dead, if it was ever really alive.

On the other hand, within the past few years progress has been made in giving a greater facility to these methods in which three-color images are assembled in register to form the print in natural colors. Mr. Ives has done much in removing difficulties of manipulation by his invention of the Hichrome process, the development of which has no doubt been hindered by the disturbed condition of the world. Another experimenter, A. Hamburger, has contributed much experiment on these lines. His polychromide process, which was for a time systematically worked in the making of portrait color prints, consisted in the assemblage of a yellow image produced by toning, a red carbon image and a blue image, again produced by chemical toning of a developed bromide print. Still more recently he has worked out methods, designed in the first instance for the production of cinematograph color films, whereby a monochrome silver image is simultaneously bleached and caused to take up a pigment or dye. A simplification such as this will, as can be readily imagined, do much to reduce the making of composite color prints to a simple operation. Further developments by both these inventors should be watched by those who are interested in this branch of the subject.

Even in such a general sketch as the present one mention should be made of the somewhat old and now almost obsolete process known as the "bleach-out", for which at one time or another great hopes have been entertained—chiefly, however, by the inventors. The principle of the process is, of course, that a mixture of three dyes, say red, yellow and blue, each separately bleached by light is made so as to yield a black film. On exposure, any given dye is bleached by light which it absorbs with the result that theoretically a film constituted as just described should become red when exposed to red light, blue when exposed to blue, and so on. Unfortunately, the endless reactions of dyes upon each other and of the vehicle upon them, as well as the different effects of substances added to render them more sensitive, form a set of variable factors which make the process exceedingly complicated. The late Dr. J. H. Smith devoted half a lifetime to this process, and his work and many writings upon it may be said to have done no more than to show the very unpromising nature of color photography along these lines. It is to be remembered that for the bleach-out process a positive, in colors, is obtained from a positive, on which account it was thought that the method offered the opportunity of reproduction on paper the beautiful effects produced on autochrome plates. The best result of this kind, however, which we have ever seen was a shocking travesty of the quality of the original.

To turn to color screen-plates, the so-called "color plates" represented by the autochrome and the Paget, we may be justified in thinking that so far as the plates themselves are concerned manufacture has become fairly stabilized, and the color worker who seeks either a plate for the making of a single transparency or one for the production of a number of duplicates is well provided for by the respective products of the Lumiere and Paget companies. But what the amateur worker undoubtedly hankers after is a means for making from one or other of these color transparencies color prints on paper. So far, no such process; or, at any rate, none worthy of the transparencies themselves, has been offered them, but a process with this end in view was patented some six years ago by Messrs. Julius and Ernest Rheinberg. The war, unfortunately, or perhaps one should say fortunately, has drawn Messrs. Rheinberg into the manufacture of optical munitions, but perhaps they will now have the opportunity to proceed with their process, the essential feature of which is the transfusion of minute color elements such as

those on the color-screen plate, through the agency of suitable chemical means, so as to form a textureless color print. This, again is a development which, from the nature of the problem, cannot be rapid, but is nevertheless one which will be watched with interest.—*British Journal of Photography.*

Internal Reflections

Many of the negatives which are made today with hand cameras, or with very compact folding stand cameras, are far from being as free from fog as they might be. When they are examined in the orthodox fashion, by placing them film side downwards on a sheet of white paper, the unexposed edges may be quite clear, it is true. This is a guarantee that the developer is not too powerful, and that the dark-room light is safe: but it takes no account of any fog which may be caused by stray light falling upon the sensitive surface while it is in the camera, since, at that stage, those margins are shielded.

The fact is that in almost all modern cameras there is of necessity a good deal of stray light; and in many of them there is also some that is not of necessity. We have used the expression "modern cameras," because much of this is due to the qualities which the present-day amateur demands. He insists on a very compact camera, one which, with its lens attached, will fold into an exceedingly small space; and the lens itself he desires shall work at a large aperture, and allow a free use of the rising front. We do not mention these demands to condemn them; but only to show that, since they necessarily lead to much stray light in the camera, they make it additionally important to take such other steps as we can, to reduce its intensity to a minimum.

Studio negatives are, on the whole, very much freer from the fog referred to. The reason for this is that the studio camera is generally much larger in proportion to the plate exposed in it, the camera has square and not taper bellows, and the lens is almost invariably very well hooded, and often has in addition a sky shade.

When we compare such an outfit with a modern high class hand camera, we see at once the difference. To secure compactness, the bellows are only just a shade larger than the plate, they taper towards the front, and the lens is practically without a hood at all. As a consequence, the cone of light admitted into the camera is much wider than is needed to cover the plate, so that the bellows, towards the back of the instrument, are strongly illuminated by the lens, and the light falling on them is reflected on to the sensitive surface. Sometimes it so falls as to give rise to quite distinct patches of local fog, but more often the light is scattered generally over the inside of the camera, and ultimately enough of it will reach the emulsion to give rise to fog.

There is another cause of scattered light in the camera, which is aggravated by a small camera compared with the size of the picture; and that is one which a good many might not suspect. The camera is a small conical box, almost the whole of the base of which is occupied by the sensitive plate or film. At the opposite end of the box is a circular piece of highly polished glass, of convex form usually, which bears a very appreciable proportion to the total area of the end of the camera in which it is fixed. The sensitive emulsion is almost white, and very highly reflective; so that when the lens is uncapped, we have a light colored surface receiving a strong illumination, and sending much of the light which falls on it back to the lens, where some may pass out, it is true, but much will be again reflected.

This is no fancy picture. Every one knows how the entire room lights up when the lantern picture is projected on to the sheet. Now let us imagine a room of the shape of a camera, with one wall limewashed and with a window on the opposite wall. To make the parallel more close, we must imagine all the walls except the limewashed one, to be painted a dead black. We might drape them in black velvet, and still when the window was uncovered get enough general illumination in such a room to allow us to read a paper. We should regard it as lunacy, to expose a sensitive plate to the stray light in such a room; yet practically that is what we have to do in making an exposure in a camera.

It is quite evident that it is of the greatest importance on these accounts to have the whole of the inside of the camera as dead a black, and therefore as non-reflective, as it can be made. Some instruments which we have seen left very much to be desired in this respect, the bellows inside being dark gray, not black, and having a distinct gloss,

which might perhaps have been due to glue used to stiffen them. A coat of dead black varnish applied to one such camera made an immediate and marked difference in the brilliancy of the negatives obtained in it.

We strongly advise the user of one of these compact cameras, especially if fitted with a modern rapid anastigmat, to examine the interior of the camera to see that it is as it should be in this respect. If not, a coating of a suitable varnish should be given. If the job is one which is beyond the power of the owner of the camera, the makers should be asked to undertake it.

Particularly should this always be done in the case of a reflex, since the varnish might clog some of the moving parts. A reflex camera, too, is one in which this non-reflecting character is particularly necessary, because there is so much of its mechanism inside the camera body and close to the path of the rays from the lens.

There is still the question of the lens to settle. The old-fashioned photographer did not buy a lens which would do much more than cover the plate he proposed to use with it. The maker of the lens, too, was not going to have his instrument tried and condemned, because it was used on a plate larger than he designed it to cover. So his lens mount and hood were such that the lens would not admit light at all over a circle much larger than that plate required; and, as a consequence, very little light from the lens, if any, reached the bellows. Many a modern anastigmat used in a quarter-plate camera can be used as a wide angle lens on a half-plate, so that the bellows are flooded with light.

We would not have this altered, as it is a great thing to be able to use the rising front freely, without fear of cutting off, and it is often convenient to have a lens which can be used on a larger plate as a wide angle one. But the fact that the lens includes this wide angle when required is no reason why it should include it when it is not required. The possessor of such an instrument, therefore, should make himself a temporary hood or sky shade to slip on the lens when circumstances permit its use. It need be nothing more than a tube of paper or thin card, made to fit the hood of the lens, and carefully blacked with a matt black varnish on the inside.

It will be found distinctly advantageous to cut away some of the lower half of this tube, so that it is more of a sky shade than a hood. The presence of an area, even dead-blacked, close to the lens and just below it, reflecting the light of the sky into the camera, may itself be a cause of fog: but if it is cut away, as suggested, this is removed. It need only be cut back for half an inch or so.

There are certain minor causes of internal reflecions which may be mentioned before leaving the subject. One of these is some bright spot on the inside of the lens mount, or on the diaphragm or shutter leaves. When only half the lens is used, the bright metal threads, whence one combination has been removed, are very prone to cause fog, and should be covered with a little ring of blackened card. By attending to these details, we can have all the advantages and facilities of the modern design, and they are very great, without having to make too great a sacrifice of quality in the negatives.—W. D. in *Amateur Photographer.*

The Light Filter In Autochrome Photography

Perhaps the only item in the autochrome process, apart from the development of the plate, which differs from ordinary photography, is in the use of the compensating light-filter. As it is one which involves details, unfamiliarity with which may prove an obstacle to the beginner who may not have considered within himself that any special precautions were necessary, it may be of service to many readers of these pages if the matter be set forth.

Unlike the light-filters which are commonly used with orthochromatic and panchromatic plates, the Lumiere filter is affected by exposure to light. Let me say that it is a question of degree. None of us who knows anything of filters will leave them exposed to strong light longer than is necessary, yet it is a fact that the particular ingredients, one of which is æsculine, used in the manufacture of the autochrome light-filter render the latter relatively more susceptible to alteration by light than are light-filters consisting of only such dyes as tartrazine or filter yellow K. The change is not one of bleaching, but, on the contrary, a darkening or browning, which makes the filter less transparent (longer exposure), besides impairing its compensating action on

the color sensitiveness of the plate. For this reason, in the case of a camera which is being carried about during a day's work in strong light, I prefer to fit the filter, not in front of the lens, as is usually done, but in the camera behind the lens, where it is sheltered from light.

Now, when a glass plate of appreciable thickness, such as the Lumiere filter, is placed between the lens and the image its action is to throw an image which has been sharply focused on the ground-glass further back by a distance equal to one-third of the thickness of the filter. This shift backwards is irrespective of the focal length of the lens. In the case of a long-focus lens, and particularly one of moderate aperture, the effect of interposing the filter after focusing might not be a serious degree of unsharpness, but with a short-focus lens, and paricularly one of wide aperture, the effect would be to put the picture out of focus. The action of the filter, as is well known, is to shift each of the rays parallel to itself, with the result that, though their angle is not altered, they meet at a point further from the lens. With glass of other refractive index than that ordinarily used for filters, the backward shift will be a fraction different from one-third, but it may be taken that this figure represents the actual behavior of filter-glass quite sufficient nearly for practical purposes.

The reader will understand that in the case of the filter being placed in front of the lens the action is similar, except that in this case the object is optically thrown back further from the lens a distance equal to one-third of the filter. In ordinary work if the object is several yards or even feet from the camera such a minute shift is altogether negligible, but it is worth while to mention it here as it can become a disturbing factor in the case of copying very small originals same size, or still more when copying-enlarging.

But this refractive action is not confined only to the filter, since in the autochrome process the plate is exposed with its glass side to the lens, and therefore the shift backwards of the plane of sharp focus is that due to the total thickness of the filter and the glass plate. The Lumiere filter has a thickness of three millimeters; the glass on which the autochrome emulsion is coated averages one and one-half millimeters, total four and one-half millimeters. One-third of this one and one-half millimeters, is therefore the shift backwards which the focus undergoes. However, by adopting one or other system of focusing, with or without the filter in position, there is no necessity to make any measurements of this small distance. The only necessary precaution is to select a focusing screen, the glass of which is the same thickness as the autochrome plate; that is to say one and one-half millimeters. It cannot be invariably this, inasmuch as there are small variations in the thickness of the autochrome glass, but it is sufficient that a screen of this thickness be used. This being done, we can work in one or other of two ways, according as one may wish to focus the picture with or without the screen. If focusing is done with the screen in position, then the light-filter must be behind the lens, and the ground-glass must be reversed in its frame; that is to say, the ground side must be that which is viewed when focusing, the glass side facing the lens inside the camera.

Many people, however, prefer to focus the picture without the filter in position, and in this case the focusing screen is used in its ordinary position; namely, ground side in the camera facing the lens. After focusing, without the filter, the filter is then placed in position behind the lens.

For those who use the filter in position on the lens-hood the ground-glass must be reversed. Focusing can then be done either with or without the filter in the case of all subjects except those, already mentioned, which are within only a few inches of the camera. In this case also, focusing with filter on lens-hood, it is necessary that the thickness of the ground-glass should be the same, as nearly as may be, as that of the autochrome plate. The very slight refractive action of the glass of the plate is, of course, negligible, since it has its counterpart in that of the glass of the focusing screen when the picture is being focused.—Bertram E. Havelock in *British Journal of Photography*.

Notes on the Paget Process

That photographers fail to obtain correct color rendering when working the Paget color process is, in my opinion, due to the fact that they overlook for the most part the importance of making a satisfactory transparency. If this is made too weak the

result is, upon the final registration, weak in color and lacking in brilliance; while if the transparency is made too dense or vigorous a totally false sense of color is introduced; in the latter case, say, a pale yellow primrose is rendered as a flower of a deep orange hue. This is, in my opinion, the most important point in the whole process, and it is worth any photographer's while who intends to work this process to make a set of transparencies from the same negative, which should, of course, be of good quality, but of different depth and vigor. Registration will show almost at a glance which is the correct density. In passing, I may add that it is a wise rule always to expose the negative plates by meter and develop by time and temperature, thus ensuring negatives of a uniform quality. This part of the process becomes, as it were, standardized, and the worker need have no fear of his results, but may produce a perfect color picture from each exposure. With regard to making the transparency, it is well to note that if this is to be projected through the lantern it should be less vigorous than when the picture is to be viewed in the hand. The matt ground plates also require to be slightly more dense than those with the clear emulsion.

Though this is, in my opinion, the most prevalent cause of weak or false colors, it is not the only point that needs to be taken into account. The other day I was consulted by a photographer with reference to some color pictures of a group of anemones. These brilliantly colored flowers were rendered very weakly in the transparency, and for some time I was at a loss to suggest the reason. The negative was of good quality, and the transparency showed nothing to complain of, being on the vigorous side. Subsequent investigation showed, however, that the exposure was made in a rather poorly lighted room, which did not render the flowers at their best, with their full brilliance and tonal value. It is necessary to see that the lighting is such as emphasizes the colors of the subject at their best and brightest, or the exposure should be, if possible, deferred until another time. Another point to be noted is that, while every attention may be given to the technique of the photograph, the lighting must be observed, or the plate may give a truer rendering of the image than did the photographer's own vision of exposure. In this the Paget process is the same as the other screen plate processes.—R. M. F. in *British Journal of Photography.*

Sulphide Toning Modifications

Some years ago we suggested a method of obtaining, by the sulphide bath, sepia tones which were colder than those usually produced on bromide and gaslight papers. The results having proved so satisfactory in our own work, we are anxious that our friends should give their attention to the method. The only difference in procedure to the ordinary bleach and sulphiding is to, first of all, place the black prints in a solution of sodium or ammonium sulphide; then wash, bleach and sulphide as usual. For good sepia tones, without any trace of yellow, on gaslight prints this method is ideal. The fixed and washed prints are immersed in the following solution for five minutes:

Liquid ammonium sulphide... 1 ounce
Water .....40 ounces

or in sodium sulphide, one ounce; water, forty ounces. Very little change takes place. In this bath a portion of the silver will have been converted into sulphide. The prints should be well washed and bleached in the usual manner, but it will be found that the image will not bleach out so completely as usual. When bleached and washed, the prints are placed in the sulphide bath, and washed as usual. We prefer the ammonium sulphide in preference to the sodium salt, owing to its being more stable and not liable to erratic action.

Another method of securing fine tones is to bleach the prints in the usual ferricyanide-bromide solution and wash well. By now putting the prints into a weak developer, say amidol or M.-Q. diluted with about five times its bulk of water, the black image reappears and gradually gains in strength. By carrying the development at this stage to a greater or lesser extent, tones from warm brown to brown black can be obtained. The prints are then rinsed, placed in the usual sulphide solution and washed. The principle here is the blending of a black silver image with the usual sulphide-toned image, hence the variety of tones obtainable by controlling the degree to which the prints are developed after bleaching.—RAJAR LIMITED.

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THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Developing Enlargements Evenly

When one has an enlargement to develop, one somewhat larger than his largest tray, soaking it in water for a few minutes and then placing it on a drawing board or the like, will permit of the developer being flowed over quite evenly and without much loss of time or solution. Once the entire surface is reached, additional developer can be applied with a brush; in fact, quite a film of the developing solution can be maintained on the print by means of a soft brush and a handy supply of the developer. If, as is generally the case with large prints, some measure of control is desired, wash off after a few moments, the first flowing of developer and then apply a new quantity in a selective way by means of the brush, governing the application by the way in which the several parts build up under the treatment. This plan is really economical of developer; and, where the correctness of the exposure is somewhat in doubt, gives a measure of control that will often save a print that, in a tray with full strength developer, could easily be developed too far quite easily. We know one good worker who keeps a well made board, covered with oilcloth, specially for this purpose.

Treating That Ghostly Negative

Every once in a while one gets a negative that is nothing more or less than a ghost of what a good negative ought to be, the result of under-exposure on a somewhat flat subject. If the negative is a perfectly hopeless one, use it to try out an experiment, one that really works in experienced hands and one that may work in yours. Take the negative and bleach it out in a strong solution of bichloride of mercury, the bleacher used in mercuric intensification, only use it full strength, a saturated solution. Rinse slightly and you will find that you have a fairly good positive, viewing it by reflected light. When dry, back it up with black velvet and copy in the ordinary way, turning the back of the plate or film to the camera to avoid getting a reversed image. If a negative is thin through over-exposure, intensification in the regular way is advisable, but for such as are too thin through lack of exposure, the plan advised is about the best that can be suggested. For the negative that is just the other way, so dense and thick that only a strong light reveals any image at all, one can first reduce and then intensify, but a better plan is to use an ordinary plate and make a transparency by contact and using plenty of light, later intensifying this positive before using it to make a new negative. This is another rarely used process of saving a seemingly worthless negative and a process well worth giving a trial as an experiment to see how it works in one's own hands.

Retouching Medium

A Michigan reader wants a formula for a retouching medium along the lines of the old-fashioned kind in which was incorporated rosin and turpentine. Some retouchers simply use these two ingredients and depend upon the action of the air to thicken and the addition of turpentine to thin the compound to the required state. We have, however, a formula, the favorite of an old-time retoucher, that we think our correspondent will like. It reads as follows:

Rosin, large red crystals.. 3 ounces
Turpentine, C. P..... 6 ounces
Ether, sulphuric ..... 2 ounces
Beeswax, white .....30 grains

Dissolve the rosin in the turpentine and add the solution to that made by dissolving the beeswax in the ether. Shake well and it is ready for use.

Trimming Prints With a Knife

Trimming prints with a sharp knife and a straight edge is far from being a slow process when a little skill is acquired, and the method is one that is conducive of neat, smooth edges not always secured with the ordinary trimmer. The main difficulty lies

in selecting the right kind of a surface on which to do the work. A sheet of glass is excellent but its hard surface has a tendency to turn the edge of the knife. A wooden surface avoids this difficulty but it soon becomes scored so badly that it does not permit of good work. Linoleum has been recommended but there is something in its composition that rapidly destroys a keen edge on the knife, and zinc seems to be too soft to avoid becoming badly scored in a short time. Best of all the surfaces we have seen used is sheet aluminum. This seems to be a happy medium between the hard surface of glass and the soft surface of the zinc. Another suggestion is that the most desirable straight edge is one of those cheap Japanese bamboo rulers sold at the ten-cent stores. The grain is so straight and tough that there is little danger of cutting into it and its flexibility is such that the pressure of the fingers holds the print at both ends of the cut so there is not the danger of its slipping as sometimes happens with a less pliable guide for the cut.

Dead Black Varnish

For blackening the inside of home-made enlarging apparatus, such as our Ohio reader wishes to treat, there is nothing better than a mixture of lampblack and celluloid solution. Clean the emulsion off both sides of some spoiled film, or old film negatives, shred it finely and dissolve to a syrupy consistency in amyl acetate. Then add the lampblack and thin down with acetone at the same time. A little experimenting will give one the right proportions, it only being necessary to add more of the acetone and more of the lampblack if the depth of color or consistency is not just what is desired. This is much better than any coating having a shellac base for the reason that it is less liable to chip or crack and it is much less inclined to dry with a glossy, light reflecting surface.

Stained Backgrounds

An Illinois correspondent wants to know what he can do to renew a painted background that has become stained. There is really little chance of doing anything after the stains, the result of a leaky roof, has become dry. It is impossible to cover them up with paint so that they will not photograph, and even if the original paint is removed, the stain maintains and is almost sure to show through, when photographed. And the stain will do this even when not apparent to the eye. Our correspondent has perhaps heard of the old ship in an Eastern harbor, beached and a wreck, that proved so attractive to tourist photographers. Despite the fact that no lettering was apparent to the eye, every negative showed quite a distinct announcement of the name of a well advertised pill. This had been painted on the side of the vessel when first beached, and then later painted over. About the same thing results when one tries to paint over such stains as our Illinois correspondent has on his background.

For Rubbing Down Negatives

Finely ground cuttlefish bone and powdered resin, mixed half and half, make an excellent combination for rubbing down the too dense portions of a negative. If the part to be reduced is small, use the powder on the point of a paper stump; even a pointed stick is sometimes required. For larger surfaces, the end of the finger is the most practical. It is best to sift both ingredients through a piece of fine cloth to insure freedom from large particles that might cause scratches, but the danger from this source is not great, particularly when using the finger in doing the rubbing. The rubbing, where large areas are involved, should be done with a circular motion; where smaller parts are being treated with the stump or the pointed stick, the rubbing will have to conform to the part.

Avoiding Pyro Stains

Dissolve two ounces of sodium sulphite in eight ounces of water and then add slowly, stirring meanwhile, a dram or two of strong sulphuric acid. This vile-smelling concoction is a stock solution that is best kept away from the dark-room for the simple reason that, in addition to its unpleasant odor, its fumes are detrimental to sensitive photographic emulsions. But half an ounce of this stock solution in four or five ounces of water, placed in a wide-mouthed bottle near the developing sink, where the fingers can be dipped in easily and quickly. If this last is done after every immersion of the fingers in the pyro developer, rinsing them afterwards, practically no stains will make their appearance, particularly if a little care is exercised to keep the fingers out of the pyro as much as possible.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

The Ohio Albums

Album No. 3 will shortly have completed its route list and No. 4 is now under way. Ohio I. P. A. members wishing to be represented therein should at once send five or six of their best prints in order to insure their representation and inclusion on the new route list. All those who have received the last or No. 3 album have expressed themselves as being well pleased therewith and as many of them have asked to be included in the route list of the next album, all their names and addresses will be placed thereon. Should any such members receiving No. 3 album desire that the next not be routed to them should so advise the album director. It is hoped that this notice concerning the sending of prints for the next album, which is now under way, will result in sufficient good prints being received, so that as good if not better album can be gotten out without the necessity of my writing members individually as I have heretofore had to do in some cases.—JOHN BIESEMAN, Ohio Album Director, Hemlock, Ohio.

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4659—Ole Anderson, General Delivery, Manitowoc, Wis. Class 2.

4660—Charles D. Merservey, R. F. D. No. 1, Box 44, Whitman, Mass. Class 2.

4661—T. L. Budd, Watervliet, Mich.
Enlargements from 2¼x3¼ Graflex negatives, various papers, of landscapes, lake scenes, photos of statuary, fountains, etc.; for figure studies and sculpture. Exchanges with foreign correspondence especially desired. Class 1.

4662—William Grigg, 318 North Ave., Milwaukee, Wis.
2¼x3¼ and 2½x4¼, developing papers, of everything outdoors, including public parks, also a few indoor scenes; for the same, including animal and figure studies. Class 1.

RENEWALS

267—C. B. Bolles, Lock Box 351, Aberdeen, S. D.
Developing papers, of landscapes, floats and a few animals, buffalo, deer, elk, also tractors; for American and foreign figure studies. Class 1.

2691—Raymond W. Goodspeed, 130 Huntington Ave., Boston, Mass.
2¼x3¼ up to 4x5 prints of views, statues, things of historical interest around Boston; for historical views and other subjects of interest in other places. Class 1.

2984—C. M. Seymour, 346 Park Road, West Hartford, Conn.
From 3¼x5½ to 5x7, various papers, of scenery, children, character sketches and miscellaneous; for pictorial, children, out-of-doors portraits,—any print showing life. Class 1.

3703—W. C. Brass, Carlisle, Ark.
Class 2.

4161—Lee A. Cartmell, R. F. D. No. 1, Box 68, Crowley, Texas.
Class 2.

4400—Lester K. Miller, Jones, Mich.
Post cards or 3¼x5½, single weight of views, wild flowers, clouds, and lake views; for anything of general interest. Good work only exchanged. Class 1.

4419—C. Lilie, Persia, Iowa.
Class 2.

4629—James Bates, Main St., Keady, County Armagh, Ireland. Class 2.
(He writes he has received so many requests for exchange that it will take him some time to satisfy them, but if they will have patience, he will reply to them all. In the meantime, he does not wish to incur any further obligations to exchange.)

4503—C. W. Maddox, 204 West Ohio St., Butler, Mo.
Developing papers, of views from the South and West and local views of the town; for figure studies and anything of general interest. Class 1.

CHANGES OF ADDRESS

1924—Ernest J. Fox, 3628 N. 18th St., Philadelphia, Pa.
(Was Pipersville, Pa.)

4226—C. A. Dexter, 225 Excelsior Ave., San Francisco, Cal.
(Was 200 Aronson Building)

4569—Niles N. Fritz, 4710 Huntington Ave., Newport News, Va.
(Was Allentown, Pa.)

4584—Paul T. Bjork, care Mrs. John Engdahl, Salem Heights, Salem, Or.
(Was Spokane, Wash.)

CLUB NEWS AND NOTES

California Camera Club

Only a few years ago it was deemed unwise to attempt two long-distance outings in one season; but, after trying it out the club is assured that two excursions each summer are better than only one. The annual Yosemite trip is a regular feature, but this year a second party visited Lake County, the "Switzerland of America", where remarkable photographic possibilities are afforded. Though but a few active members took the trip, Lake County scenes have become quite popular in the club rooms.

Herbert W. Gleason, Inspector for the Department of the Interior, delivered the monthly lecture: "Some of Our New National Parks" on Friday evening, September nineteenth. As on the eight previous occasions when he appeared before the club, the accompanying lantern slides were beautiful examples of his skill as a photographer and Mrs. Gleason's skill as a colorist.

The chief demonstration of the month was given by L. E. Rea, photographer of twenty-six years standing, who condensed the results of his experiences into a one hour's talk on "Rea's Theory of Light and Exposure".

A collection of unusual European landscapes by Dr. A. D. Chaffee of New York City, formed the club exhibit for the latter part of September. A set of figure studies, the work of Arthur Kales, Los Angeles member of the Pittsburgh Salon, preceded. Their technique, lighting and posing, all brought forth favorable comment. Dr. Chaffee is winner of several medals and has many prize prints from Eastern and European Salons. His pictures are all bromoils and constitute his first local showing, with the exception of three prints which hung in the last California Camera Club Salon.

Chicago Camera Club

This Club held an opening party at its new quarters, 31 West Lake Street, on Wednesday evening, September tenth. A most enjoyable program was carried out and those present found much to commend in the arrangement and equipment of the Club quarters.

St Louis Camera Club

The St. Louis Camera Club has enjoyed a wonderful renewal of interest by all its members since the trying time just passed. Many of the members who laid away their cameras during the troublesome period have again taken up the work with their interest renewed many fold, and a record breaking future is before us, judging from the results so far shown. Beautiful work is shown at every meeting and large numbers are participating in our week-end hikes and outings. The regular meetings, held the second and fourth Thursday evenings of each month, at the Central Public Library, Thirteenth and Olive Streets, are enjoyed to the full, being successsful both pictorially and socially.

OUR BOOK SHELVES

"The Elements of Photography"

This valuable little book, No. 8 of the Practical Photography Series, reaches us in the form of a new edition to supply the continued demand. The sixty pages are crowded with information that should be of great value to the beginner and much of the contents will be found helpful and suggestive to the worker of some little experience. Work with both plate and film cameras is treated in a clear, non-technical way so that the reader is assured of a full understanding of the advice given. Published by American Photographic Publishing Company, 221 Columbus Avenue, Boston, Massachusetts. Price in cloth covers, seventy-five cents; paper covers, thirty-five cents.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

F. W. Reed of Pasadena motored to San Francisco to see the fleet the first part of the month. Some speed burner,—made it in sixteen hours.

H. A. Parker of Pasadena went to Catalina Island to fish, but was not very successful. He only caught one, it weighed one hundred and seventy-two pounds. Fish! I should have said swordfish.

Ethel Tucker still holds forth at the Broadway Department Store, Los Angeles. She spent her vacation at Big Bear Lake.

W. E. Potter of the Broadway Department Store showed me some very fine photographs taken at Big Bear Lake. Am sure the "Craft" would publish some if they could be obtained.

Fred Seyler of Tapprell, Loomis Company, Chicago, was on the Coast during September.

Geo. A. Dolan of Probus fame, has just returned from Huntington Lake, where he and his wife spent a few weeks' vacation.

J. C. Franklin, Palo Alto's famous group photographer, visited the city during September.

C. C. Green of Salinas has sold his studio to C. W. Hodson.

J. C. Vasar of Salinas has joined the Eastman Portrait film gang. They're all doing it.

"Bill" Masters, "Bill" Stewart and two other old photographic "Bills" met recently; the first time in years. The evening wound up in a banquet.

Dr. Lipman In New Offices

Dr. A. Lipman, the optometrist so well and favorably known to a large number of our local readers through his courteous and efficient methods of dealing with his patrons, has removed to rooms 811 and 813 Phelan Building. His new equipment is both modern and complete; and, with his skill and experience he is prepared to do the most exacting work in the way of eye examinations. We can recommend Dr. Lipman to any of our readers in need of the services of an optician or optometrist and feel sure they will be pleased with the results of a consultation with him.

" Elementary Photographic Chemistry "

We can hardly speak too highly in praise of this handsome eighty-page book of the most practical and informative matter concerning the chemistry, applicable to photographic material and photographic manipulations. It is a model of concise and complete instruction placed before the reader in a manner that its author, as one thoroughly conversant with his subject, both practically and theoretically, as well as the possessor of a most logical mind, one that assures a presentation of the instruction he seeks to impart in a manner that is easily grasped and held by the reader. The chapters, in their order, are devoted to an outline of elementary chemistry, the chemistry of photographic material, of development, of fixation, of toning, of reduction and intensification, of washing, formulas, preparing solutions, and simple chemical tests. We are advised that copies of the book will be sent gratis to our readers making application to The Eastman Kodak Company, Rochester, New York. Any reader who neglects to avail himself of this opportunity is missing a chance that is not presented very frequently and we trust this notice will have the hearty response that the free sending of so valuable a book presents.

"Boosting Us By Pictures"

"Boosting Your Home Town", appeared as an editorial in this issue, an editorial that has been crowded out of the last two issues, was inspired by a neat little folder with the title, "Boosting Us By Pictures," sent us last spring by our occasional contributor, A. A. Richardson of Bemidji, Minnesota. Today we are in receipt of a full report of his paper on the same subject delivered befor the Northern Minnesota Development

Association at their meeting at Cass Lake. Incidentally, in recognition of his good work in the direction indicated, Mr. Richardson was made official photographer for the Association, a post that almost any active photographer would be quite glad to hold. The point, however, that we wish to make is this: If a man located in so small a town as Mr. Richardson's, can make himself so much a part of the development activities of his section, hundreds of our readers can do as well or better, through enjoying greater opportunities. It all depends upon the initiative of the individual, and photographers are not exceptionally lacking in this respect, once the road is suggested to them. If our editorial on another page interests you, write Mr. Richardson, enclosing a stamp, requesting one of his "Boosting" circulars, and see what you can do along the same lines. It will pay you in satisfaction, in good will, and in added revenue. It is a matter well worthy of your consideration.

New Wollensak Catalogue

Just as we go to press the new catalogue of the Wollensak Optical Company of Rochester, New York, reaches our desk. This book not only lists the standard products in the line of lenses and shutters put out by this firm, but it contains a wealth of valuable information that makes it instructive and informative in the extreme. For example, pages 6 to 10 give a glossary of lens terms explained in a clear and lucid manner that will clear up many points not heretofore entirely clear to many photographers. There is no need of our going into the good points of this booklet when all the reader has to do is to address a postal card to the firm and for the copy that they advise they will be only too glad to send to any of our readers who may so request. Mention this notice and address the firm as above, doing it at once before the matter slips your mind.

Increased De Roos Sales Force

Henry G. de Roos, the prominent local photo supply dealer, has added four more "live wires" to his already efficient force. Three of these have recently returned from over seas after seeing action in France. They are Herbert Luhn, formerly of the Eastman Kodak Company, who, with the Seventh Army Corps, saw active service in the Argonne-Meuse drive; M. H. Levitt, formerly with the old Sunset Photo Supply Company, and who saw action with the Motor Convoy Division; and, Dr. F. W. Stelling, who has the distinction of being the only man chosen from San Francisco to serve with the Optical Unit at the Base Hospital in Paris. Last, but not least, the "old reliable" J. T. Bertrand, for many years with the G. Cramer Dry Plate Company. Mr. Bertrand is looking after the professional trade; Mr. Luhn is taking care of the retail trade; Dr. Stelling is in charge of the Optical Department, while Mr. Levitt is in charge of the shipping department. All four have had an extended experience in the photo supply business, and their services are an acquisition of which Mr. de Roos may well be proud.

"Middleburgh Needs a Photographer"

Under the above caption, *The Middleburgh Post,* which claims to have a larger circulation than the other four Snyder County, Pennsylvania, papers, prints the following:

"Middleburgh has no photographer. The town and the county needs a good artist. That kind will be welcomed and assured abundant reward. No other kind wanted. Particulars at the *Post* Printing Office. If you know a real artist, tell him to write us."

We do not know just how large a town Middleburgh is, but it is, apparently one of, if not the largest towns in the county, if its local paper has the largest circulation, and there being four other papers in the county would indicate that it is not a sparsely settled community. Photographers looking for a good location would do well to get in touch with the *Post* man and find out what the prospects are.

Watkins Time Thermometer

Time and temperature development is now the established procedure, and the Watkins Time Thermometer does away with all calculation and all risk involved in making a mistake therein. Watkins, the father of factorial development, is sponsor for the device and that is about all the recommendation it needs, if an article that will simplify matters, as it does, needs any recommendation other than its obvious utility. Send a dollar to Tom Hadaway, 235 Fifth Avenue, New York City, and get one of these thermometers. You will never regret having done so.

New Ansco Catalogue

The new catalogue of Ansco amateur cameras and supplies is a handsome production and one that is brim full of information concerning this excellent line of small cameras. Particularly interesting are the several special features, such as the direct view finder, the Ansco combination back, the Speedex shutter and others, making the catalogue one that should interest any photographer using a hand camera, and what photographer does not use one of some kind, these days. Copies can be obtained from your dealer or direct from the Ansco Company, Binghamton, New York.

A Real Hypo Eliminator

Some time ago Tom Hadaway sent me a four-ounce bottle of "Hypono", a product that sells in large quantities over in England, and one that he is introducing to the professionals and amateurs in this country. We happened to have a friend, a photographer who is a crank on the subject of hypo elimination, and so we waited for a chance to get him to give it a trial, knowing that he was equipped with the necessary solutions and skill to make careful tests for hypo remaining in the emulsion after fixing. He has just reported that "Hypono" is all that is claimed for it. He was loud in its praise and has sent off his fifty cents for a reserve supply. Knowing, as I do, that he has tried every formula that has been suggested during the past ten or more years, his ordering a supply of "Hypono" is all the recommendation we need. The product must be a good one and we would advise the reader who wants to save time and wash water to do likewise. Long washing of prints, even if time and water is no object, is pretty sure to result in at least a slight accumulation of dirt in the sponge-like emulsion, and therefore any plan for lessening the evil is to be desired. Send fifty cents and address Tom Hadaway, 235 Fifth Avenue, New York.

How It Is Done

Perhaps you have noticed some of the nice light effects the motion picture cameramen get into their landscapes when they photograph the characters in the open air, "on location", as they call this kind of work. Your own landscapes do not turn out that way, try as you will, except now and then by chance, and then they sometimes turn out much better than you expected. How does the motion picture man do it so regularly? It can't be chance with him, because he can't ask the director to do the whole thing over again because he picked out the wrong spot or lighting. But a recent visitor has been over to Culver City and watched "Bud" Wales do camera work on some Triangle film. He used one of these Scheibe's Monotone Filters you will find advertised on another page. In fact, this recent visitor says he found some of the directors using the filter themselves in order to see that set-up scenes were properly "dressed" so as to photograph as they should. We no longer see rooms finished in such a style that the whole scene is killed, and it is all due to the certainty with which this simple device indicates just how the different furnishings will photograph. And this same monotone filter will tell the ordinary photographer the same story. It will tell him when an orthochromatic plate should be used and when the picture will come out better on an ordinary plate. It costs only three dollars, in neat leather case, and one will make no mistake in investing in one of them. "Bud" says it is as necessary to him as a good lens.

Auto Truck Wreck Picture Wanted

One of our readers is very anxious to get a picture of the auto truck wreck on the La Jolla Grade, May twenty-second last; in fact, has an advertisement in our "Camera Want" section offering to pay ten dollars for such a picture. If this should meet the eye of anyone who made a picture of that wreck we trust he will answer the advertisement and thereby help sustain our good reputation as an advertising medium.

Illinois College of Photography

Readable wireless messages are the production of an instrument that has been developed by C. A. Hoxie of Schenectady, New York. The apparatus, linked with a photographic outfit, records messages on photographic tape, at the rate of four hundred words a minute. The inventor says he will shortly be able to photograph six hundred words a minute. It required three minutes to develop and wash a strip of the photographic tape.

Don't save for a "rainy day." Save and there will be no "rainy days." Buy W. S. S.

CAMERA WANTS

Advertisements of the above nature shown below will be inserted under this heading at the rate of fifty cents each insertion, for twenty-five words or less; each additional word, two cents extra, cash with order. Those of positions wanted inserted once free. No business advertisements accepted.

WANTED Pictorial negatives of sea gulls in motion, marine views and landscapes. Send sample print and price of negative. Address Van de Grift's Art Studio, Fort Wayne, Ind.

FOR SALE 10x12 5D f-6 Dallmeyer; 11x14 Scoville & Anderson box, double bellows, 42-in. draw; stand for same; 11x14 curtain holder. Will take $100.00 cash for the above. T. O. Juve, Enterprise, Or.

POSITION WANTED In photograph studio as general assistant by middle aged woman, experienced. Will go anywhere in California if fare is paid. Address L. B. P., care "Camera Craft", San Francisco, Cal.

SALE OR TRADE A brand new Klix home motion picture camera and projector. An ideal outfit for taking and showing motion pictures in the home. The outfit includes camera, tripod, screen, projector and lighting element; all complete and compact. Will trade for a good enlarging camera or a penny picture camera. Would like one of the old style penny picture cameras with the sliding front for making 15 exposures on a 5x7 plate, 5 in a row. For particulars and description of motion picture camera, address The Photo Shop, Box 501, Beloit, Wis.

LENS FOR SALE Bausch & Lomb Zeiss, series V, No. 3, covers 6½x8½, focal length 5½ inches; price $20.00. C. A. Gilchrist, 172 Perry St., Oakland, Cal.

FOR SALE Studio in good location in town of 3500 population. Davies Studio, Auburn, Wash.

FOR SALE An 11x14 Empire State view camera with 3 double plateholders; an 11x 18 adapter with 2 double plateholders; extra heavy tripod; 2 canvas carrying cases, etc. Good as new; cost originally over $100.00, will sell for $60.00. Also several other view cameras, 8x10, 6½x8½, 5x7, some lenses, etc. C. A. Nelson, 1709 23rd St., Bakersfield, Cal.

WANTED Graflex enlarging camera with illuminator or Radion enlarger. Must be A-1 condition and reasonable. Give description and price. B. Springsted, 1218 Henry St., St. Joseph, Mo.

SALE OR EXCHANGE 8x10 view camera, anastigmat lens and Optimo shutter for 5x7 hand camera with triple extension bellows and triple convertible lens. Address O. E. Longtin, 3602 Mono Ave., Fresno, Cal.

SALE OR EXCHANGE One 8x10 N. Y. camera, automatic attachment, practically new; 1 reflecting cone for R. O. C. enlarging back; Aristo lamp jacket. Would like to trade for a 5x7 Verito lens with enlarging stops. Address T. J. Cronise, Salem, Or.

SALE OR EXCHANGE 3A Kodak, Dynar lens, Multispeed Jr. shutter, $40.00. 5x7 new Ingento plate tank, 12 5x7 kits. Wanted 2¼x3¼ film camera with good lens. H. U. Scholz, Medford, Or.

FOR SALE 8x10 Voigtlander Portrait Euryscope, 12-in. focal length, f-4.5; perfect condition. Make offer. Address E. P., care "Camera Craft", San Francisco, Cal.

WANTED A pair of 14-in. condensers; also dry mounting kodak press 11x14. Hodson, 1021 8th St., Sacramento, Cal.

WANTED Photographic books and magazines in exchange for figure studies and prize winning landscapes. State what you have. H. Brodine, 777 Forest Ave., New York City.

WANTED Goerz Dagor lens, 6-in. focus; also 3¼x5½ or smaller Graflex f-4.5 lens. State condition and bottom price in first letter. 50 Fort Greene Place, Brooklyn, N. Y.

WANTED Victor Portable Stereopticon with Mazda light. State condition and lowest cash price. I. M. Reed, 664 61st St., Oakland, Cal.

WANTED A complete set of the Self-Instructing Library of Practical Photography, by J. B. Schriever. State condition and price. H. Mason, 564 Sioux St., Winona, Minn.

WANTED Good modern 8x10 studio outfit, complete. R. E. Stinson, Red Bluff, Cal.

WANTED 9 or 10-in. condensing lens; 7-in. Velostigmat, f-6.3; 1⅝x2½ V. P. camera with f-4.5 or f-6.3 lens, not kodak. J. D. McDonald, 1417 Belmont St., Seattle, Wash.

FOR SALE 1 Simplex Photo Northern Light, cost $75.00, will take $65.00. Used 1 month. Reason for selling ill health. For further information address W. E. Britt, 3017 2nd Ave., Columbus, Ga.

FOR SALE The only photo studio in the county, Eastern Washington; nearest competing point 48 miles. If you want to run a photo factory with lots of hired help do not write me, but if you want a snug, pleasant, paying business, all you and your wife want to do and have small rents to pay, good prices for your work, ground floor studio, best location, nicely and completely fitted up and if you have a few hundred dollars to spare, write at once to Box 413, care "Camera Craft", San Francisco, Cal.

SALE OR EXCHANGE Goerz Celor f-4.8, 6-in. focus, in barrel, condition A-1, $32.00; will consider trade or purchase of Goerz Dagor, 3½-in. or 7-in. focus; Ica Ideal, model A (with or without lens) or Ica Cupido. L. F. Holmes, 2110 Beaver Ave., Des Moines, Iowa.

FOR SALE 8x10 B. & L. Plastigmat, f-6.8, 12-in. focus, in Seneca Duo shutter, $50.00. 6½x8½ Conley, ser. V, f-6.8, 10-in. focus, in Conley Safety shutter, $37.50. 5x7 B. & L. Zeiss Kodak lens, f-6.3, 8¼-in. focus, in barrel, $32.00. Acme portrait lens, f-5, 6¼-in. focus, in barrel (no stops), $5.00. F. H. Maybury, 2627 Ursuline Ave., New Orleans, La.

RETOUCHING and coloring wanted. Return express paid. Alice M. Shorthill, Clayton Hotel, 12th St., Portland, Or.

FOR SALE 14-in. Goerz Dagor lens, $85.00; 9½-in. Dagor, $50.00; 7-in. Dagor, $30.00. All A-1 condition. H. B. Greene, 15 Harold Park, Roxbury, Mass.

FOR SALE Eastman regular size round print washer, $12.00; Victor Studio flashlight cabinet complete without batteries, $35.00; both like new. A. J. Sicard, Athens, Pa.

COLORING Enlarging and retouching a specialty. B. Ashworth, 626 Grove St., San Francisco, Cal.

FOR SALE Portrait studio with living quarters, in center of 600,000 population, city, low rent and big movie trade; $75.00 weekly profit; fully equipped. $2,000.00 cash. Write for information, plans and photos of studio. Sun Land Studio, 326½ South Broadway, Los Angeles, Cal.

RETOUCHING For particular photographers. Specialist on retaining character. Colorist. Special attention given to out-of-town work. Prompt service, right prices. Emerson Beers, 539 41st Ave., San Francisco, Cal.

XXVI No. 11 NOVEMBER, 1919 Price, 10 Cent

SAN FRANCISCO
PUBLIC LIBRARY

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MONOMET has been tried out thoroughly in comparison with other modern developers and its results are unquestionably superior. For sepias or for black-and-whites Monomet-developed prints are identical with those produced with Metol.

REVISED LIST PRICES, EFFECTIVE JUNE 26, 1919

One-pound container	**$20.00**
Half-pound container	**10.10**
Quarter-pound container	**5.10**
One-ounce container	**1.35**

ANSCO COMPANY, Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

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Expirations—Subscriptions to Camera Craft are discontinued on date of expiration. The date on the address label on the wrapper shows the time to which each subscriber has paid. Thus: Nov. 09 means that the subscription expires with the number dated November, 1909. ¶**Renewing**—In renewing a subscription, do not fail to say that it is a renewal, giving name and address just as now on the address label. ¶**New Address**—In notifying us of a change of address, give both the old and new address. Should you miss a copy through change of address, advise us of the fact, and another will be gladly sent. ¶**Dealers**—All photographic supply dealers and news dealers are authorized to receipt for subscriptions in our name.

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. . . Waterworths Limited, 58 Queen St., Auckland
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Philippine Islands . . . . . F. O. Roberts, Manila
Japan . . . . . K. Kimbei, Yokohama
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NOVEMBER BARGAINS

IN

High Grade Lenses and Cameras

LENSES

Bargain Numbers		
100	1⅝x2½ **Zeiss Kodak Anastigmat,** f-6.9, 85 mm. in B. B. shutter. List $22.00	now $15.00
74	1-in. focus **Goerz Dagor, Ser. 3, No. 0000,** f-7.7, in barrel; like new. List $34.00,	now 22.50
83	3¼x4¼ **Goerz Celor,** f-4.8, 4¾-in. focus, in barrel; new. List $48.00	now 37.50
16	3¼x4¼ **Goerz Dagor, Ser. III, No. 0,** 5-in. focus, f-6.8, in Kodak Auto shutter; perfect condition. List $45.00	now 29.00
42	3¼x4¼ **Ross Goerz,** 5-in. focus, f-6.8, in Ilex Acme shutter; like new	now 38.75
77	3¼x4¼ **B. & L. Zeiss Protar, Ser. 4 (Wide Angle),** f-12.5, in barrel; new. List $17.50	now 12.50
3	3¼x4¼ **Ross Homocentric,** 5-in., f-6.3, in Compound shutter; new	now 36.00
4	3¼x4¼ **Ross Homocentric,** 5-in., f-6.3, in Multispeed Jr. shutter; new	now 37.50
22	3¼x4¼ **Ross Homocentric,** 5-in., f-6.3, in Koilos shutter; new	now 32.50
10	3¼x4¼ **Goerz Syntor,** 5-in. focus, f-6.8, in Ipco shutter; perfect condition. List $43.00	now 24.75
28	3¼x4¼ **Ross Homocentric,** 5-in. focus, f-6.3, in sunken mount; new	now 23.00
47	3¼x4¼ **Ross Homocentric,** 5½-in. focus, f-4.5, in barrel; new	now 35.50
75	3¼x4¼ **Turner-Reich, Ser. II, No. 0,** 5-in. focus, f-6.8, in Acme shutter. List $40.00	now 30.00
33	3¼x4¼ **Ross Goerz,** 5-in. focus, f-6.8, in Optimo shutter	now 38.75
21	3¼x4¼ **Ross Homocentric,** 5½-in. focus, f-6.3, in Koilos shutter. List $44.80	now 36.50
13	3¼x4¼ **Ross Homocentric,** 5-in. focus, f-6.3, in barrel. List $33.50	now 24.75
93	3¼x4¼ **Dynar No. 2,** 4¾-in. focus, f-6.8, in Koilos shutter. List $40.00	now 28.50
31	3¼x4¼ **Beck-Steinheil Orthosteigmat, Ser. I, No. 3,** 4¾-in. focus, f-6.3, in Goerz O. S. Sector shutter. List $61.00	now 26.75
92	3¼x4¼ **Carl Zeiss Protar, Ser. VIIA, No. 2,** 4½-in. focus, f-7, in Volute shutter. List $73.50	now 55.00
76	3¼x4¼ **Goerz Celor,** 5-in. focus, in Ibsco shutter. List $55.00	now 42.00
6	3¼x5½ **Bausch & Lomb Tessar, Ser. IIB,** f-6.3; eqv. focus, 6⅞-in., in barrel; new. List $45.00	now 37.50
101	3¼x5½ **Rodenstock Eurynar,** 6½-in. focus, f-5.4, in Optimo shutter	now 37.50
27	4x5 **Ross Combinable,** 6-in. focus, f-5.5, in barrel. List $62.50	now 50.00
79	4x5 **Verito,** 6½-in. focus, f-6, in Auto shutter. List $20.00	now 16.50
18	4x5 **B. & L. Tessar, IIB,** 6-in. focus, f-6.3, in barrel; new. List $36.50	now 30.00

Continued on Next Page

MISS INGEBORG LA COUR
By PERCY NEYMANN, PH. D.

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A Small Finishing Plant

By G. W. Greene

Working in a few finishing shops, visiting a number of large plants in the East and Middle West, including the Eastman model plant, and running a small shop of my own, may, I trust, justify my presumption in offering a few suggestions on kodak finishing. The methods advocated may, in some cases, vary from the makers' instructions, but such departures have been found to either save money in original cost or economize time getting out the work.

When the work comes in, the first thing to do is to get it booked. The simplest and most accurate method of handling up to three hundred rolls a day, is to enter the orders in a cheap journal, one costing ten cents. A serial number is given each order and the entry is made like this:

718

Mrs. John Jones, Jonesville, Wis.

1—116—6

1 ea. (meaning one print of each good).

In the case of an agency or other large customer the name only can be stamped in with a rubber stamp. The next line of the entry shows the number of rolls and size, while the last shows just what work is to be done. Start the numbering with 1 each week, in order to keep it low. At the same time that the order is booked the number is placed on the roll or rolls.

When a tank full of films have accumulated, develop them. Placing the films on a small shelf, with a ruby light in front of you, the numbers can be seen on the roll. Repeat them on the film, using a blue "glass-marking" pencil. Ordinary

lead will stick, but this kind of pencil is better, and rarely rubs off. The pencil has the advantage over scratching or punching methods in that the number can be easily erased when it accidentally overlaps on the picture, as it sometimes does.

After the films are marked and stripped, they are doubled back, face out, and the ends fastened with a Kodak Jr. clip. In the case of small films, No. 2 Brownies, etc., two films can be placed back to back, with a clip on each end. The film holder is hung up by the hooked handle before work is begun, and as each film is stripped it is hung upon one of the rods in the hanger. Several can be placed on each rod. Film packs can be handled best by the use of Premo Pack Hangers; but though these can be developed along with the roll films, it is best to handle them separately, as they require about fifty per cent longer development. Plates can be handled easily by using a plate tank rack on the end of a strong cord that permits it being lowered to the bottom of the tank out of the way of the roll films.

The best developing equipment that I have ever seen, using tanks smaller than the forty-eight-gallon stone ones recommended by the Eastman Company, is one employing sewer pipe tanks. The vitrified clay sewer pipes are absolutely acid, alkali and water-proof. And they are cheap, compared to wood or copper. Obtain four sections of this pipe, each four feet long and of a diameter suited to your needs. I used ten-inch pipe for a while, handling about thirty rolls at a time. Build a platform of two-inch plank, about six inches from the floor, and make it wide enough to hold the pipe, and place the sections, flange-end up, on this platform.

If drain pipes are wanted, the next thing to do is to arrange them in place. These, with the necessary elbows, valves and other fittings should be so placed that end of the pipes extend through the board into the bottom of each tile section with the valve handles between the platform and floor where they can be reached easily. Allow the upper end of these drain pipes to project about two inches above the plank, inside the tiles. When they are arranged to your satisfaction, pour about two inches of concrete, half sand and half cement, into the bottom of each tile and allow to harden. Some rags stuffed into the ends of the drain pipes will protect them from concrete that might flow in. When the concrete has set, pour enough real hot paraffine into the bottom of each tank to thoroughly coat and protect the concrete. If you do it quickly you can drain the surplus out through the drain pipe and thus give a coating to the interior, that part above the valve that will be exposed to the chemicals.

If your climate demands it, a water jacket for cooling the contents can be built around the developing tank. A cylinder, made of galvanized iron, one slightly larger than the sewer pipe, can be set around the tank. This should first be coated with Probus paint, except for an inch or so at the bottom, inside; then placed in position and two or three inches of concrete poured in. The water jacket is then on the developing tank for life.

Have the tinner make two or three film hangers, shown beneath printer in drawing herewith, the size being determined by the inside diameter of your tanks. Make them from 10 gauge iron wire, and have at least an inch between the spoke-rods at the edge of the four-inch metal center. Have the ends of each

SEA GULLS ON THE WING By W. C. SAWYER

rod turned up about one-half inch, in order to prevent the films slipping off. The upright hook in the center, for hanging up while filling, should be at least six inches long. When the holder is completed, give it one or two coats of Probus, and keep the metal coated at all times in order to prevent staining of the films. A circular tin cover, with a tight fitting flange, will protect the developer from the air and greatly reduce oxidation. This should also be coated metal with Probus.

I have had very satisfactory results, using a small tank, with a twenty-minute developer, made as follows:

Water	1 gallon
Kathol	½ ounce
Hydroquinone	¾ ounce
Sodium carbonate	3 ounces
Sodium sulphite	5 ounces
Potassium metabisulphite	80 grains
Potassium bromide	25 grains
Sodium hydrate	65 grains

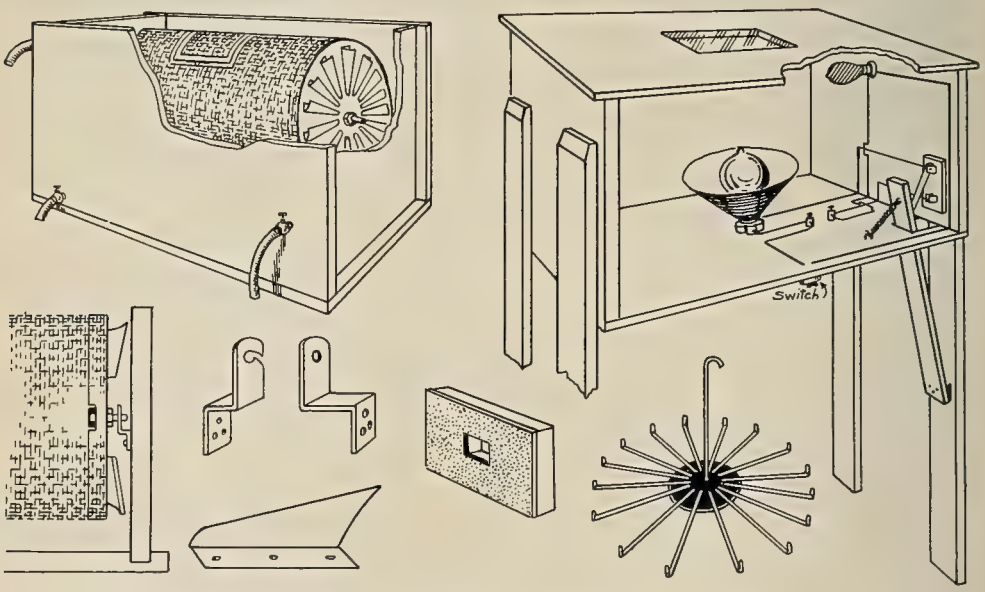
Add water to make five gallons. This developer gives fine contrast, suitable for amateur work; is non-staining, oxidizes very slowly and will develop more films than any other I have used.

While the films are being developed the envelopes can be made out, using the order book and making a check mark opposite each entry to show that this has been done. The envelopes should bear the film order number and customer's name.

The second tank is used for rinsing tank; and, while the washing tank can be used for this purpose, it will double the capacity of your tank system to use a fourth tank also for rinsing. The hypo is mixed according to the standard

acid-hypo formula, though, in the cooler seasons, very little hardener is necessary. Theoretically, the amount of silver which could be recovered from a tank full of exhausted hypo would be worth some trouble, the fact that the tanks must be used every day and the silver has to be precipitated as a sulphide, makes me doubt the advisability of bothering with it.

Strong spring clothespins, stretched on a wire or light rope make a convenient arrangement for drying. The wet and slippery end of the film may slide out, and it is therefore advisable to drive a couple of small tacks through the end of each clothespin, thus forming a puncturing point that will hold the heaviest film. The average finisher thinks that a drying cabinet is almost a necessity. It isn't. If one will fix his drying line, either at or near the ceiling or so arranged that it can be raised there, the warm air at the top of an ordinary store or room will usually dry films in an hour or two.



After the films are dry, check them against the original entry. On the end of the film, near the number, write the instructions with a pencil; 1 ea., 2 ea. D. O. (develop only), or whatever they may be. At the same time sort the films according to size, thus saving a good deal of time in printing. The films are taken to the printing room without cutting up.

Two printers rank first for amateur finishing work, in my estimation. One of these is the Pa-Ko printer, which though not inexpensive comes closer to being an ideal printer than anything else on the market. Plenty of lubricating oil, and some rubber attached to such points of shock as the lever operating the pressure board, will help a lot. The other is a home-made printer that can be constructed for less than five dollars. The drawings herewith show the details. No measurements are given, as the individual worker will vary the size to suit himself. The top, which should slope slightly towards the operator, has a 5x7 glass fitted into the top, so as to leave a smooth surface. A nitrogen bulb in a circular reflector, furnishes the printing light; while a small ruby

LIBERTY FORUM AT DETROIT By J. A. GROSSMAN

bulb gives the illumination necessary for adjusting the mask and negative, as well as for judging the density and contrast. A strip of wood, one-half inch thick and two inches wide, hinged to the right-hand front leg near the bottom, controls the lights by a sideward movement of the knee. In place of the usual hinged pressure board, use a block of inch wood, about 4x6, with a sheet of felt over the under side. In the center of this cut a hole to accommodate an ordinary self-inking rubber stamp. The metal legs should be cut off so that they cannot come in contact with the paper and negative. This stamp is fitted into the center opening and screwed to the block so that the numbers will just come in contact with the paper. The felt covering on the bottom of the block is of course cut away where the stamp operates.

The masks may be home-made, but I have found the Eastman transparent masks, with trimming guides, easier to adjust and the guides made it possible for a girl to trim prints faster and more accurately. In any case, a mask for each size used is fastened to a separate piece of 5x7 glass; a wide rubber band around the mask and glass holding the uncut film in place.

Thus equipped, the paper can be adjusted very quickly and the numbering pressure block held down upon it; a movement of the knee switching on the printing light at the same time. The big advantage of this type of printer lies in there being, practically, no weight to move. The numbering stamp, being built into the pressure pad, numbers the print while the exposure is being made. A quick-drying rubber stamp ink should be used, and used sparingly, to avoid any blurring of the number or soiling of the next print. There is little to get out of order with this printer. The operator is not tired with a heavy pressure board that must be raised and lowered, and the number cannot be left off a print through accident.

A small trip of yellow celluloid will enable you to mask off the fogged or short end of a negative. The same number that is on the film can be used on the print, but it is much easier to begin every morning with a new print number; the first order printed each day bearing the number 1, the second 2, and so on, this saving time in setting the stamp. The number should, in all cases, be stamped on the end of the film. If there is no paper remaining there, a small sticker can be attached to take this stamped order number. An initial or key number will show, where there is more than one printer, which one made the print, and such a number will also simplify the sorting.

In my own work I use both Azo and Cyko paper. The former has the advantage in price, and is used by many finishers. Of the latter, I use Studio Surface, in the three regular grades, and some professional for very blocky negatives. Two sizes are enough, and their use simplifies matters. Use 4x6, full size, for post-card stuff, and cut it in two for 2¼x3¼. Use 5x7, cut in two, for 3¼x4¼ and 2½x4¼. Cut in quarters it makes a good size for "vest pockets" and smaller. In using Cyko it really saves time and trouble to buy the five-hundred-sheet boxes of amateur finishing size paper. By the use of paper guides on the printing masks the prints can be made with even margins on two sides and thus decrease the trimming, but personally I prefer to turn out prints trimmed on all four sides. The edges of any print pick up dirt, show abrasion, and the corners show some damage in the washer.

Iron baking trays, painted with Probus, make good trays for the acetic acid short stop and acid fixing bath. Be sure and keep both of these fresh and strong. Nothing is more depressing than having a lot of stained prints to make over, particularly during the rush season. A big wooden spoon makes a good paddle for the short stop and hypo. An electric light, white, fitted in the bottom of a one-pound soda can and hung a foot or so above the hypo tray, will enable you to see the real tone, depth, and quality of the prints. The makers' formulas should be used for all paper development.

For washing small sized prints there is nothing that will beat a rotary washer, and a good one can be made as follow: Take a piece of one-inch hardwood and cut two circles, ten inches in diameter, to be used for ends. With these, make a cylinder of quarter-inch mesh galvanized screening, twenty inches long, with a hinged door, made out of the same material, in the side. Place a bolt in the center of each end-piece for an axle, and supply one of these end-pieces with small galvanized iron paddles, arranged as on a water wheel or water motor. This circular cage is then mounted in a tank so that its top will just come above the water level. The water inlet, directed against the paddle-wheel end, causes the cage to revolve and keep the prints separated and in motion. The overflow outlet is at the top, and the drain pipe in the bottom can be used to prevent hypo-laden water from settling there, as well as for drawing off the water for easy removal of the prints. The drawing herewith should make all clear. Notice that the head of the bolts used as axles are sunk into the wooden ends so that they will not catch and tear the prints. The two bearings on which these axles revolve are shown in the drawing, the form of the hole in the one at the left permitting of the revolving part being removed for clean-

THE YACHT MISCHIEF By W. C. SAWYER

ing if necessary. One of the galvanized paddles or vanes is also shown below. Fifteen to thirty minutes in such a washer as this eliminates all hypo from the prints. Or you might buy one of the excellent Rex washers, made by the Northern Photo Supply Company of Minneapolis.

Formerly I dried my prints on a stretcher; but, finding that they curled too much and dried too slowly, I bought a blotting paper and corrugated board drying roll, such as the Eastman Company supply for their Majestic Drier, costing about three dollars. Rolled up in one of these, the prints dry about as fast without heat as they do on a stretcher. Set over a hot air register or near a radiator they dry as quickly as in a regular drier.

If you lack these sources of hot air, have a tapered, galvanized iron cylinder made, with one end large enough to receive the end of the blotting paper roll, the other end small enough to just take a six-inch fan blade. Fasten the galvanized iron cylinder in an upright position with a cheap electric fan, such as the Polar Cub, at the small or lower end, with a gas burner or small oil stove near and slightly below. Roll up the prints in the roll, stuff the inside of the roll with an old piece of cloth, and drop in the funnel. With such a dryer, about fifteen or twenty minutes will dry your prints; and no matter whether heat is used or not, they will come out flat and with a slight backward curl.

The sorting of the prints is done by first laying out the films on top of their respective envelopes; the original glass-pencil number on each film corresponding with its envelope number. The number stamped on the end of the film, in the printing room, corresponds with the number on the prints. If sorted first and

trimmed later, the order can be checked and inspected for imperfect prints at the same time that it is trimmed.

A ten-inch trimming board, with a slot in the bench just beneath the edge for carrying off the paper trimmings, is used. If the trimmer is set on a special built-up table and a small, fifteen-watt lamp arranged under the cutting edge in such a way that the light shines past the edge and through the print, it will be found that the correct margin can be judged more quickly and the prints trimmed faster. The light, however, must not shine into one's eyes.

As the envelopes are checked, and the amounts due marked on them, the order book is again brought into play and each order checked against it once more. A large check mark is made through the order and the amount due is marked at one side.

A few miscellaneous suggestions and I will close. For general lighting of the printing room, use either an Ingento Indirect lighting fixture or else make one like it by taking a tin wash basin, wire an orange bulb into it, hang it a few inches from the ceiling, and paint a white enameled circle spot above. You will be pleased with the result. In fitting up a printing room or a tank room, do not paint it black unless you want to see how much dirt you can collect in it. Paint the walls white or some very light color. Be sure that the room is light-tight and that your ruby and orange lights are safe. The light colored walls will reflect much of the light and the corners and floor will be well enough lighted to enable you to see things that you may drop in addition to being safe from fog, the light colored paint will practically force you to keep the place clean. A clean work-room, seen by a customer, at once stamps you as an unusual finisher.

Build your developing tanks large enough. If you choose your developer with a view to its keeping qualities you will be able to use it until exhausted; and, when you do this, there is nothing to be gained by having a smaller tank. In addition, the larger tanks will enable you to get your films developed, during a rush season, without working all night.

Have at least one more printing machine than you think you need. A finishing business can increase suddenly at times, and the printing room is generally the weakest link in such a shop.

Keep the work moving through at all times. Too much bookkeeping can do more harm than good. If you have all the films that came in the morning or the night before, developed, printed, and in the envelopes by five o'clock, there is no danger of getting them mixed up with the next day's work.

A small finishing business, built upon a foundation of good quality, prompt service, and reasonable price, has nothing to fear from the mail-order finisher or the larger finishing plants. A good black tone, one that is not muddy, olive or blue; accurate white margins; twenty-four hour service, or less; and satisfaction to your customers; those are all that any finishing shop needs for success.

He that cometh to seek after knowledge with a mind to scorn and censure, shall be sure to find matter for his humor, but none for his instruction.—Bacon.

A Rock-Crystal Lens

By H. D'Arcy Power, M. D.

With Illustrations by the Author

Some years ago I had occasion to take a few portraits indoors, exposures that I wished to make instantaneous, and if possible, without the knowledge of the subject. I naturally bethought me of one of the modern lenses working at f-3.6 or f-4, but as I already had a Protar working at f-5.6, I did not relish the prospect of expending the very large sum that the larger apertured lens would demand. Just about this time some work had been done in determining the quality of pictures yielded by infra-red and ultra-violet rays; the latter, having very great actinic power, precluding the use of glass lenses, through which they cannot pass. The concurrence of these two facts made me think of the possibility of using a quartz spectacle lens, mounted so as to permit of a very large opening or diaphragm. Chance favored me at the time, in that I was able to obtain a five-inch spectacle lens of this type with a diameter of one and a quarter inches, thus making an aperture of practically f-4 possible. This was fixed in a temporary mount, and the first experiment made in my office, an ordinary room with a rather high window. A friend of mine in the building had complained to me that she had never been able to obtain a satisfactory picture of her daughter, owing to the "camera fright" which so many seem to suffer from, and I suggested sending her down to my office with an inquiry concerning some professional work. In the meantime I had placed my quarter-plate Graflex on the office table, properly focused upon the chair which I intended her to

THE PORTRAIT MADE IN MY OFFICE
DATA: Room lighting, f-4, one-sixteenth second

DATA: Deep, dark ravine, 6 p. m., f-8, one-sixteenth second

occupy, and with the shutter set at the sixteenth of a second. This seat was at least ten feet from the window, and the lighting that of an average afternoon. In the course of our conversation, I pressed the button without her knowledge, and the result is shown in the first illustration. Other experiments followed, with equally good results, both in portraiture and landscape.

Then, unfortunately, I lost the lens, and upon obtaining a second one, secured only pictures that were marred by greatly inferior definition. I later found that crystal or pebble lenses, as they are called in the trade, had passed out of use on account of the frequency of structural defects in the material. Other things came in the way, and I let the matter drop for the time. But recently, on attending a meeting of the State Medical Society, I was shown a number of very beautifully made crystal lenses, used in the transmission of violet rays for therapeutical purposes. I inquired of the agent, representing the Hanovia Chemical & Manufacturing Company of Newark, New Jersey, as to whether or not a spectacle lens could be made for me that would be structurally flawless, and was assured that it could be done. In due time a four and a half-inch focus lens, with an aperture of one and a half inches came duly to hand, and I proceeded to give it a trial. The results are apparent in the photographs accompanying this article, and it seems to me that there is much to be said in favor of a very general use of lenses of this type.

It will be recollected by photographers of artistic tendencies that some years ago Major Puyo and other members of the Paris Photo Club started a movement for the use of spectacle lenses of large size; claiming for them the production of better-balanced images, devoid of the harshness of the anastigmat, and there-

fore having a plasticity of modeling that is absent from most photographs. It is an outgrowth of this movement that has given us the soft-focus lens that is now in so much favor, but the good soft-focus lens is a costly apparatus, ordinary spectacle lenses, or, to use the correct term, simple non-achromatic lenses, have certain good and bad points. Among the former is the ability to transmit a large amount of light, owing to the absence of reflection from many surfaces, and great cheapness. Against these is to be placed linear distortion, which makes straight lines near the edges of the plate appear curved, and a difference of focus between the image seen and the image recorded on the plate, which last can be overcome only by racking back after focusing.

DATA: In the Redwoods, 5 p. m., f-16, one second

When, however, a simple lens is made of rock crystal, this graver defect is so reduced as to be of no importance; for, whereas the difference between the visual and the actinic focus of a glass lens is as much as one-fortieth of its focal length, the difference in the case of the rock crystal lens is less than one-four-hundredth, and this is insufficient to make any real difference in focusing necessary. The accompanying photographs were all taken at their visual focus. The linear distortion, in cases where it would be a detriment, can be overcome largely by stopping down. If the diaphragm be placed at a distance from the lens, equal, let us say, to a fourth of its focal length, the definition is improved and the distortion minimized. In the case of the pictures illustrating this article, the crystal lens was mounted so as to occupy the back of the barrel that accom-

modates my Protar lenses, the diaphragm, being in the middle, comes about one inch in front of the lens.

One other defect met with in single lenses has given me a little trouble with this lens; namely, the occurrence of flare spots. For the most part I have had no trouble, but when working amongst tall trees with great light contrasts, I had several plates defective in their centers on this account. It is to be understood that this is troublesome only when the lens is much stopped down and the trouble can be avoided by shifting the distance between diaphragm and lens.

DATA: 4 feet from 40-watt tungsten, f-4, 5 seconds

It is now in place to summarize the advantages this lens offers: In the first place it is more rapid than any other form, in that it can be used at very wide aperture; and in addition to the volume of light thus given, there is a further gain by there being little loss from reflection, the number of surfaces being two against as many as sixteen in the case of some anastigmats, every surface turning back a certain proportion of the light. Besides the volume of light, it transmits rays of great intensity that do not pass through glass at all. This makes it possible to get photographs in comparatively dull light, such as in an ordinary room, with the rapidity of one-sixteenth of a second, these being the conditions employed in the portraits accompanying. For the same reason, portraits taken by artificial light, such as

that of a single electric globe, are within accomplishment in reasonable exposure time; one forty watt mazda lamp giving a good picture in ten seconds, as shown by one of the portraits herewith. Thirdly, it gives all the advantages of a soft-focus lens, as the character of the accompanying pictures demonstrate. Everywhere will be found a sufficiency of definition with that amount of softness which permits of broad modeling, an effect that can never be the product of microscopic definition. Fourthly, it is an extremely inexpensive lens; I am under the impression that the original spectacle lens which I first bought cost about a dollar. The one now in use was expressly made for me of larger size and cost six dollars. So confident was I of its value that, on a recent visit to the country, I took no other lens and had no reason to regret so doing.

DATA: Deep shade, 3 p. m., f-4, one-sixteenth second

In conclusion let me state that the form of the lens should be that of a meniscus, that the convex surface should be turned toward the plate. The opposite arrangement would give microscopic definition in the center of the negative and great fuzziness everywhere else. The diaphragm should be well in advance of the lens, and a lens shade should be employed, particularly if the lens is worked at full aperture. Doubtless others have experimented with such lenses, as there is "nothing new under the sun," but there is little to be found on the subject in books on photography, and I am reasonable authority for the statement that there is little or nothing concerning such a lens in the serial literature of the last twenty years.

And So It Happened

By George Parke

Through a mistake of his deaf old nurse, the hero of Gilbert & Sullivan's opera, "Pirates of Penzance", was bound out to a pirate instead of a pilot. Much the same, in a way, was my childhood fate; for a doting mother left the determination of my future occupation to her younger brother who had just entered into a copartnership with a photographer of the old school. Their studio, as a matter of course, became my abiding place for the greater portion of each day, including Sundays, and there I found a fertile field for my experimental inclinations. My first attempt at practical chemistry, the combining of nitric acid and ammonia in a narrow-mouthed bottle, resulted in the total destruction of a new pair of trousers and a portion of the studio carpet.

Warned by the outcome of this essay, I proceeded, with more care but with hardly less evil results, to investigate and experiment with the contents of other bottles and containers about the place. I fixed the hypo, mixed the developing solutions, strengthened up the toning bath, silvered the paper and my hands as well; in the meanwhile telling my girl how much I enjoyed the work in notes inscribed with the retoucher's pencils. But my efforts along experimental lines were brought to a sudden halt when I thoughtlessly left a small portion of the silver bath in the wash basin in which the boss afterwards bathed his face. It was almost a month before the brown stains left his countenance and the marks of my thrashing became effaced.

I managed, in the meanwhile, to learn not a little of the business, my greatest success being in the line of spotting prints. I certainly could spot them. With unerring aim I could place a dab of color exactly alongside a white spot on the print, thus guaranteeing the customer a double number of spots for his money. I also tried my hand at retouching negatives while the lady retoucher was at lunch; but the effect, as recorded in the proof, was generally more of a surprise than a gratification to the customer.

Passing over such incidents as leaving the tap running all night and flooding the tailor shop below, adding an excess of aniline blue to the toning bath, silvering a few days' supply of albumen paper on the wrong side, and overprinting numberless proofs through becoming absorbed in dime novels, I hasten to assure the reader that the firm succeeded in holding out until the end of the year. As I had not received a cent of salary, the cost of my services was properly entered up as profit and loss, and I, of course, became a total loss.

Thus, cast upon my own resources, I quite naturally sought a similar field, beginning a career that has been rounded out by my present success as a photograftер. I borrowed twenty-five dollars from mother and invested it in what was then called an outfit. It was a 5x8 camera, having fifteen inches draw but without side swing or shifting front. It was fitted with a Waterbury single

lens and a single plateholder, all contained in a wooden carrying case that only weighed about five pounds. This case was an institution in itself, one that deserves special mention. With a few alterations and the insertion of a couple of partitions, a small family could have been accommodated therein quite comfortably according to present-day ideas of flats and other compact housings. And to complete the outfit, there was included a tripod somewhat similar to the ones now used by motion picture operators; strong, substantial, and easily transported by means of a wheelbarrow or light wagon.

My first view was of a neighbor's back yard and her clothesline. I have it yet;—that is, the negative; not the lady, the clothesline or the back yard. While the pose of the lady was quite natural and unconscious, my skill was rewarded by an application of a part of the clothesline and the loss of my neighbor's friendship, and since then I have had little interest in back yard scenes. It all came about through my showing the resultant print to the other neighbors as a sample of my work. It was a fine example of the capabilities of photography, and also a fine display of underwear; and, while it brought forth much comment, most of it was unfavorable to the innocent victim. I still have the negative, but the friendship of my good neighbor is no longer mine.

As a professional I was hardly a success until I got in with an old-time tintyper at about the time the dry plate was coming into vogue. I had been using them for a week, and therefore had no hesitation in undertaking to teach him the new process in exchange for a half interest in his business, or rather, in the profits of our joint efforts, on a fifty-fifty basis. It was a great combination for a floating studio; the old man having accumulated an extensive vocabulary of cuss-words during his Daguerreotype days while I was rich in one summer's experience as "mud clerk" on a Mississipi River packet. Notice the resemblance of my life to that of Mark Twain's.

We got together the material for a flatboat, crowned it with a topheavy skylight of real glass, fitted it with a sail and a pair of lee boards—a lee board is a centerboard which is twins. To assist in propelling our somewhat unwieldy craft, we bought a hot water boiler from a barber, fitted it to an upright marine engine of four horsepower, attached a ten horsepower whistle thereto, and arranged to transmit the power to a four-foot paddle wheel at the rear of our ark. We fired the boiler by throwing coal down the smokestack, sometimes catching and throwing back the larger of the unburned pieces that were driven out by the exhaust. The first time we tried to make a landing we blew the whistle as a signal to the wharf boatman; but the effort took all the steam from the boiler and we had to pole back, two miles upstream, before we could land. Thereafter we landed first and blew the whistle afterwards.

The efforts of our Dutch deckhand to find his wooden shoes after jumping overboard into five feet of mud; the delay occasioned by returning for me after I had sunk my pole too deep in the river bottom and held onto it after the boat had slid from under; the disturbance created by the senior partner the first night that he slept in a hammock that swung him, asleep, into deep water: all are details that could scarce be done justice in whole chapters, so I will put in a few "close-ups" and finish the reel.

Steadily I progressed from the water to the land, from taking the whole family to taking the store and a mortgage on the farm; I sure had acquired most "taking" ways. I learned never to ask a prospect if he wanted to have a picture taken, but to make the exposure and then sell the work as soon as possible, before the excitement subsided. Photographs are like biscuits, hard to assimilate after they are cold. I operated in a tent and did most of it without resorting to gas. I followed the fairs; took the parades and the paraders' cash; "flashed" the store fronts and the barber shop interiors; was "caller out" and also called down; "passed the proofs" and then tried to deliver the pictures; finally becoming a movie operator for a news weekly. Then I reformed and quit the business. My sole aim now is to warn unwary ones from the pathway I have trodden at so dear a cost in time and money. Having acquired the experience of others in exchange for my hard earned cash, I would gladly dispose of my superabundance to my readers in as painless a manner as possible. The line will form at the front of the house, and please step lively without crowding. Have your money in the left hand and a copy of this magazine, showing this article on the front page, in your right. I thank you.

You will get more profit from trying to find where beauty is, than in anxiously inquiring what it is. Once for all, it remains undemonstrable; it appears to us, as in a dream, when we behold the work of the great poets and painters; and in short, of all feeling artists; it is a hovering, shining, shadowy form, the outline of which no definition holds.—GOETHE.

Camera Tells of Reconstruction

By American Red Cross

Illustrations by A. R. C. News Service

In compiling the official story of the world war, the War Department of the United States chose the camera as the official raconteur. Its veracious lens proved or disproved the enthusiastic stories narrated by the spectators or participants. Today the gigantic task of reconstructing the ravages of four years war is being worked out in Europe. From the snowy stretches of Poland to the torrid Holy Land the camera is collecting the story of reconstruction as it gathered the story of devastation.

And the story that the camera tells is of mutiles being taught to use American power implements under the direction of American Red Cross instructors; of the diseased and naked of the Balkans being fitted with the old clothes collected by the American Red Cross last spring; of the medical treatment and advice of American doctors and nurses who, under the banner of the Red Cross have penetrated into the most distant parts of the countries of the Old World.

A MOSQUE IN CONSTANTINOPLE—Frequently the scene of a clothes line, for mosques and temples have been converted into distribution points by the American Red Cross for the naked people of the Near East

Reading the descriptive word paintings of great writers, one may luxuriate in a shudder, a murmur of pity, and then forget. But the camera brings the sorrows of the world and of individuals into the very hearts of those far-distant. Images of the emaciated babies, of pallid mothers, of maimed and blind men valiantly striving to eke out an existence in the place they once called home, awakens in all a fraternal feeling, a desire to help the sufferers, who are not beggars but victims of circumstance.

THE RED CROSS IN THE FIELD—From the Near East to the Frozen North is a far cry, but the RED CROSS workers have left behind camels and adopted reindeers

But all that the camera gathers is not tragedy, there are humorous scenes, pictured glimpses of moments of ecstasy; there is the announcement that the regiment will leave for home; the mother's greeting to her returned soldier; his first sight of his baby; buying his first suit of "civies" in two years.

Strange, and yet not so strange, in all the pictures there lurks either in the background or conspicuous in the front, the Red Cross. It followed the doughboy not only into the front line trenches, and across No Man's Land, but into the very prison camp of the enemy. Now it is with him and with the needy peoples of the older world in the days of peace and reconstruction.

And it is only the camera which really tells the story of the American Red Cross. Words are feeble to depict the poignant emotions of life. One reads and reads, and then must pause to think before full realization dawns. Even then a vivid imagination is a necessary ingredient. But the camera: A click, and the moment is caught, the story is told.

Many a camera has caught scenes of flood, fire, earthquake and disaster in the United States where Red Cross workers were bringing order out of chaos, comfort out of misery, courage out of despair.

The Red Cross, when at last it turns from its finished work in Europe, will still be prepared, as always, for sudden great emergencies; but the main feature of the peacetime program is not spectacular; it is a great campaign for public health, calculated to bring American life to a higher and happier plane.

Through education, and through the services of public health nurses, it is proposed to fight tuberculosis and all preventable diseases, infant mortality, malnutrition, the preposterous number of deaths of women in child-birth, of deaths by accident which "first aid" could prevent, and all the other unnecessary drains on the strength and vitality of America.

For this great purpose, a Third Roll Call will be inaugurated November second, and continue to November eleventh, the anniversary of peace. Old members will be asked to renew membership, and fifteen million new memberships added, it is hoped, to the roll. You can make your dollar one of those which will be enlisted in this fight.

Wise men are instructed by reason; men of less understanding, by experience; the most ignorant, by necessity, and beasts by nature.—CICERO.

Photography—The Flirt

By Frances Mathilda Purdy

An alluring, mocking siren, holds me ever at her side;
Her subtle promise seems for me alone.
When I follow, she eludes me
With a coldness, that deludes me
Into thinking that her charm, for me, has flown.

SURGING WATERS By FRANCES MATHILDA PURDY

Then her mysterious influence steals back, and calls my pride
To show her I am equal to her arts:
So I toil, with renewed ardor,
Make my efforts finer, harder——
But she only notices by fits and starts.

My absorption, and entire subjugation, have no end;
All I earn is laid, each payday, at her feet;
Friends, society, I'm learning
Have no interest; while my yearning
To be with her every moment, is complete.

But, what captures my devotion, is her great variety:
(This is a trait which many flirts possess!)
For, like most coquettes before her,
When all my failures bore her,
She swiftly turns, and crowns me with SUCCESS!

Art has not yet come to its maturity, if it do not put itself abreast with the most potent influence of the world, if it is not practical and moral, if it do not stand in connection with the conscience, if it do not make the poor and uncultivated feel that it addresses them with a voice of lofty cheer. Art should exhilarate, and throw down the walls of circumstances on every side, awakening in the beholder the same sense of universal relation and power which the work evinced in the artist, and its highest effect is to make new artists.—EMERSON.

Using Orthochromatic Emulsion

By Charles A. Harris

With Illustrations by the Author

When, for negative making, the claims of plain emulsions are taken up in comparison with the merits of color-sensitive emulsions, it would seem that the latter was more generally useful. It is safe to say the average worker, once becoming familiar with orthochromatic material, is unlikely to go back to the other, except for occasional or special work. The objection is sometimes made that without a filter the ortho plate has no particular advantage over a plain one, but the fact is that in yellow light, to be met with in studios and also out of doors late in the day, there is considerable gain, even without a filter. The light itself is of filter quality.

Althought perhaps gratuitous, one cannot help but point to the probability that before long film will take precedence over the glass plate, and that these first will practically all be color sensitive. It would seem, therefore, the part of wisdom, to do some experimenting along this line. On the one hand, an effort might be made to simplify the procedure, making it less of an advanced worker's method, while with the other, the question of using film is simply a matter of overcoming the sloth of habit.

The plates or films and the filters are the materials at hand, and one should acquaint himself not only how to properly use these, but also how not to use them. For example: a filter, when used for landscape or the like, will sometimes make it possible to get a far distant object that would not be in evidence in the negative had the filter not been used. Owing to the great volume of light between the camera and the object in such cases, this proceeding often challenges the full powers of one's filter equipment. As one man explained it: "Use the filter you estimate is right, and if you don't get it, try one of a deeper color." But there are many occasions when a bright clear rendering of the distance is quite unnecessary; in fact, might ruin an otherwise good piece of work. Filters will also help in preventing halation and in keeping the negative free from fog; and in this connection, the use of a lens hood is strongly recommended. If one will try the experiment, some bright day when the light is strong, of forming a short tube with each hand, and then looking through as with a pair of field glasses towards the distance, the difference between the shaded and unshaded eyes will be apparent. The lens has certain capabilities of which a part should be considered reserve power to be used on exceptional occasions. This also applies to filters and to men. The common fault, with beginners at least, is that they speed up for all occasions.

As this work unfolds, there is presented quite an opportunity. The phenomenon of light, the theory of the undulations of the ether, deserves a certain amount

"THE LIGHT DECLINES AS DAY DEPARTS"

of attention, since light is the active agent in the production of our photographs. Like electricity, not very much is known about light, excepting certain effects as demonstrated. Whatever it is, we merely know that it has the power to effect some imperceptible change in the bromide of silver emulsion, so that the chemical action of the developer will reduce to a metallic state the parts acted upon. A cloth laid upon a green lawn will whiten in the sunlight, this being another effect of light action. The ordinary white light or daylight that illuminates the object we are trying to photograph, includes within itself all the color we see. This we learn by directing a beam of light through a prism which, under proper conditions, splits it up into a regular sequence of color like the rainbow. Objects have absolutely no color inherent in themselves; all objects being colorless from which light is excluded. And now we have the second surprise: The object we designate as red, takes this color because it absorbs all the other rays and reflects red; this being good evidence that the object itself is not red. If it could be anything in itself it would be some color other than red because, as explained, the red has been reflected. The principal colors, as well as all the infinite combinations of these making up all the tints and shades, are caused, then, by the varying number of rays which are absorbed or reflected. An object is white because it reflects all of the spectrum rays and absorbs none. Another object is black for the reason that it absorbs all and reflects none; being, as noticed, quite unresponsive. I believe these latter, black and white, are seldom, if ever, absolutely pure. There seems to be authority for the

statement that the finest black obtainable will reflect two or three per cent of the light falling upon it. For photographic purposes an absolute black can be obtained by painting the interior of a deep box, mat black, and photographing the opening, as this arrangement cuts out all reflections.

This leads, quite naturally, to another point of interest, at least as between the camerist and the artist of the brush. The various spectrum colors of daylight, which is, of course, the photographic light, are formed quite differently from the pigment colors of the artist, although both producing the same color sensation. The first are produced by a process of addition. If the yellow rays of the spectrum were superimposed over the blue, it would produce white; the two shining brightly upon the same spot, but mixed together. In the second case the color effect is produced by a process of absorption or subtraction. Pigment yellow and pigment blue produces green. The blue in this case absorbs almost entirely the yellow and red, and the pigment yellow absorbs the blue and violet light, so that only the green remains. In the first case it is the light itself we are dealing with, and in the second, substances which absorb or reflect light in varying quantities.

But to return: In orthochromatic photography we are mainly concerned with the regulation and control of these color rays which have been briefly referred to. The problem is, of course, to utilize color rays in such a manner as to produce a picture in monochrome having good color contrast values; that is to say, so that the relative brightness or contrast shall be somewhat as the eye sees them, so that yellow shall appear in the print lighter in tone than indigo blue, and so on. Strange to say, the opposite effect would result if an ordinary plate were used. Thus it is seen that in photography, as usually practised, the camerist "regulates" out of his picture that which the other artist carefully preserves, namely, color.

Those unacquainted with the use of the filters, etc., may readily secure descriptive matter of their dealer. The Eastman Kodak Company have a booklet entitled, "Color Plates and Filters for Commercial Photography", and the Cramer Dry Plate people have another smaller booklet that will be found useful. But there will probably come a time when special, home-made screens or ray filters for different purposes, will demand the workers' interest. An unexposed plate, preferably a lantern slide plate, on account of its thin glass, or a section of unexposed film, can be placed in plain hypo until the silver is cleared from the emulsion, which last will then be transparent. Provided it be fairly fresh one can color several pieces of this material with yellow aniline dye, securing varying depths of color, and the result will be an inexpensive set of filters, useful for experimental purposes. For regular work, however, one should give the preference to a corrected, standard filter. A good safe screen to be used on the lens when placing paper on the enlarging easel, can be made by soaking a film in red or carmine ink; this giving something like a dark-room light. Then again, some workers are partial to chiffon screens, and these can also be fixed up as indicated below.

Sometime ago, I improvised a holder to use with such screens; and, as it proved satisfactory with continued use, I feel it may be recommended. It con-

ALONG THE RIVER'S BANK IN JUNE

sists merely of two small squares of heavy cardboard or mounting stock in which circular openings had been cut, with a piece of colored film between, all bound together with tape like a passepartout. This particular one measures one and three-quarters inches square, with the circular opening in one card one and an eighth inches in diameter, and in the other, just an inch. In position for use the larger opening fits the lens mount, while the outer or slightly smaller opening forms a stop when the screen is pressed into place. This holder is well adapted for use on a lens having very little of its front flange extending beyond the shutter, and the film is held in close contact with the front of the lens mount and cannot shift out of place. The slightly rough inner edge of the larger circular opening has sufficient "cling" to hold the screen securely and yet be easy to put in place or remove. If, instead of a film, a glass filter is to be used, then the outside piece of cardboard, the one with the smaller opening, can be omitted, the glass being bound up with only the cardboard which fits it to the lens.

The making consists mainly, as suggested, in cutting a couple of round holes in squares of suitable cardboard. Lay the lens mount on the cardboard and draw a line around with a sharp pencil; then cut out the center roughly, keeping within that line. Now, if a piece of fairly coarse sandpaper is fastened, with glue or tacks, to a round stick, it is possible to continue the work and produce a neat, circular opening of the desired size. For the best results the stick, with sandpaper attached, should correspond with, but be just a little less in diameter than the desired opening, in order that the curve of the sandpaper will be practically the same as the radius of the circle. The stick may be anything round that is of the diameter wanted, or a little less; a tin or cardboard tube will answer, while it is possible a section of a broomstick or a part of some piece of furniture, may be used. If the diameter is not just right, winding

with stout paper will increase the size, and it might be advantageous to wind one end a little larger than the other, so as to begin with the smaller diameter and finish with the larger. The process of sandpapering, which should be done by rotating the stick, will raise a burr on either side of the cardboard, and so, at intervals, one should remove the stick and slice off this burr with a sharp penknife. When nearing the pencil line, try the opening on the lens mount at frequent intervals to secure just the size that will fit snug and not drop off. Several of these holders can be made up in a very short time, to be used as required.

In conclusion, attention might be invited to the question concerning the desirability of using film for these color filters in place of glass. I have noticed one or two references to the fact that aberrations, caused by the use of glass filters could be obviated by using a film, particularly if the latter could occupy a position near the diaphragm. Used in a holder such as described, there would be no occasion for touching the film with the fingers, and if kept in a box or case when not in use, the film would hardly require the added protection of glass.

These are, however, suggestions at random, but a trial might easily be made with some of this stained film to test the possibilities and the difference, if any, between the two, in their adaptability for light filters.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

THOSE ODD FOLDERS: When an apprentice, many years ago, the boss used to explain to the customer that he purposely made some of the prints lighter and some darker, in order that the customer's friends might be given a choice in the matter of the particular picture selected. I thought that quite a clever means of covering up his inability to produce a uniform set of prints. But a demonstrator recently gave me a new application of the same idea, one that seems to me more legitimate than the original one. We all have odd lots of mounts and folders in stock, left-overs and the like, that are inclined to become a dead loss. None of our customers want their entire order finished in these particular styles; in fact, some of the lots are not even a full dozen. The idea is to suggest to the customer that we be allowed to make up the order with at least half the number on assorted mounts and folders, so that the friend may have the choice of a folder or card more to his liking than perhaps the one the customer himself favors. It works and works well; and what is better, pleases the customer. We find them coming back to us for assorted mountings, even when our stock of left-overs have been exhausted.—I. K. M., Illinois.

CLEANING NICKEL PLATED WARE: Add seventy minims of sulphuric acid to eight ounces of alcohol and apply with a brush or rag to the surface to be cleaned. Allow to remain for a few seconds and then give a thorough rinsing in clean water, followed by an application of plain alcohol and polishing with a soft cloth.—T. G. B., New York.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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What It Amounts To

A pessimistic visitor came in the other day, and in the course of our discussion, which dealt mainly with the little that he and a few others we both knew had achieved, photographically, he asked: "What does it all amount to, anyway?" We did not argue the point; our visitor was in the wrong frame of mind, and our own time was limited. But his query still confronts us, not as at all influencing our own feelings in the matter, but as expressing the mental attitude of too many who should really know better. Photography, as practised by the average amateur, once he has gotten over the joy he feels in the mere act of creating, or helping to create, an image of scenes before him, becomes a matter of securing results. Of course the particular results that will afford one worker the most satisfaction are somewhat different from the results that would be most gratifying to another, but it is the results that count. It is on the results that his satisfaction, his gratification, depends. And these results, be of what form they may, depend upon two things, his knowledge of photography and his equipment; with, to a minor extent, his opportunities somewhat influencing.

It requires only a little thought to convince one that, as in any other field, the end desired, in this case, the photographic results, should harmonize somewhat with one's opportunities. The worker, living in an uninteresting section and with little or no opportunity for travel, could not hope to achieve very satisfactory results in the way of landscape or the like, even though these same surroundings might be ideal for the production of those homely, intensely human and always pleasing renditions of everyday life. And so on through the list. But too often the inland resident bemoans the fact that he does not live within earshot of the sea, the city dweller envies the photographer whose lines are cast in the rural section, and the latter finds no opportunity to gratify his photographic desires except as he may travel to the large city or to the sea coast, or perhaps some equally unfamiliar scenes. Let us adjust our desires to our opportunities, and this is not so difficult as one might suppose. If one will but realize that there are perhaps hundreds of others bemoaning the fact that they are not situated as we are, the adjustment will not seem so difficult. And we must remember also that it is a natural failing for us to under-estimate the value of that which is directly at hand, a failing that we must try to avoid.

The line of our endeavor somewhat decided upon, let us return to the statement that our success hinges upon our photographic skill and our equipment; and then, let us try to realize that it is much more a question of our skill than of our equipment. How many amateurs are doing fine work with the most simple apparatus, while other are failing with apparatus that is the best the market affords. Too many workers seem to think it more advisable to spend fifty dollars for a new lens than five hours in intelligent study of some problem

that confronts them in their work. In no other line of endeavor is this ill-advised procedure so common as in photography. The painter does not hope to produce better pictures by purchasing more elaborate easels, finer canvas or more costly stretchers. The architect does not hope to replace long study with elaborate equipment. But the average amateur; if he only had this, and that, and the other thing, would turn out pictures that would be masterpieces.

What does it all amount to? It amounts to simply this: it amounts to just what we put into it. We should take our own capabilities, those of our present equipment, and those afforded by our surroundings, and with these clearly appraised as a basis, evolve a plan of procedure that will be at least somewhat consistent. Then, with a plant to work by, let us simply work. The work will be a pleasure, the results will afford satisfaction, and our question as to what it all amounts to, will be answered. If we have an appreciation of pictorial quality and find delight in studying such work, pictorial photography can be made our aim. If our inclination lies in the direction of good technical work, let us take up something that will gratify that taste. If our desire is mainly to please our friends by recording the changing appearance of themselves and their surroundings, let us do that class of photography in the best possible manner. If solving the problems that the many photographic processes present should appeal to us, let us make these our special interest. But trying to do all of these things at once, or simply trying to do nothing but snap a shutter first here and then there, results in nothing that will be of more than passing value, either as affording pleasure or as giving us pride. Photography, like any other human endeavor, be it one of pleasure or profit, is worth a little thought. The man who asks the question we have quoted, simply acknowledges that he has not had the good sense to give the matter the little thought that it demands. A little thought would have prevented the question being asked; a little thought would have supplied the answer.

Photography, as a hobby, as a relaxation, as a means of gratifying our creative inclinations, as a means of introducing variety into our too often rather humdrum existence, has no equal. The by-paths are many and varied. The requirements are neither costly or exhausting, the results secured can give pleasure to others as well as to ourselves, the interest should increase as added experience is gained. Of what other hobby or of what other field of endeavor can the same claim be so truthfully made? Our friend's question is answered; at least, so far as we can answer it in a general way, with the average amateur in mind. With the professional the problem, is, of course, somewhat different; and yet, the same analysis of the situation should prove helpful. Personality and business ability here becomes important factors, and in place of available opportunities as to selection of subjects there comes in the question of what class of work will best suit the available clientele. It all sifts down to the matter of getting a clear idea of the factors involved, getting the right perspective thereon, and then applying ordinary good sense to one's line of procedure.

True art is like good company; it constrains us in the most charming way to recognize the standard after which and up to which our innermost being is shaped by culture.—GOETHE.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Straightforward Oil Painting

Michael J. McLaurin, writing in *The Amateur Photographer,* gives us the following: Difficulties in the supply of developing materials, caused by the war, are teaching photographers to turn their attention to other processes besides the ever-popular gaslight and bromide methods, and, seeing that this is so, a word in favor of oil printing might well be in season. Oil printing is one of the cheapest of photographic processes, since almost the entire cost of an oil print is represented by the price of the sheet of gelatinized paper on which it is made. The sensitizer and the ink, the only other materials, are used in such trifling quantities as to be almost negligible; while in apparatus, all one has to buy is a brush and a cheap palette knife.

The oil process has been under a cloud, as far as the rank and file of photographers are concerned, because of the results by it which have been exhibited. Gritty and coarse in texture, and generally smudgy as these have been, there has been much excuse for those who have come to look upon them as characteristic of the process. Those who remember the series of articles in this paper by Mr. Wastell, with the illustrations with which they were accompanied, will know, however, that the oil process, legitimately used, will give clean, sharp results, with ample detail and richness of tone quite easily. Those who take it up with such as their aim need not regard it as at all tricky or involved. The methods of control, soft inks and hard inks, wiping and dabbing, may be put on one side; and the process worked just as the other ordinary processes of printing are worked, to give a faithful reproduction of both the details and tones of the negatives.

When this is done, it will be found tnat the oil process is capable of giving results which will amply satisfy those who do not at all admire the ordinary exhibition oil print. Not that there are not very beautiful and delicate results by this process shown at the exhibitions—one need only mention such exhibits as those of Mr. Inston and Mr. Frank H. Read, but with these the process does not insist on asserting itself as it does in the case of many others, and so when oil prints are spoken of it is the cruder examples which come to mind. There are certain precautions which must be observed if the prints are to pass muster amongst carbons, bromides and platinums; but by giving attention to these points there will be little or no ground for complaint.

One of these is the necessity for correct exposure. An under-exposed oil print is of no service at all. It cannot be inked up to give anything but a coarse granular result.

On the other hand, over-exposed prints are dull and flat. Fortunately, the paper gives so very distinct an image in the printing frame, that one very soon learns to recognize the correct depth for printing without the use of an actinometer.

At first, however, an actinometer of some sort will be found a valuable help; because it gives a record of the depth of printing, which can be consulted afterwards. If a second print is to be made the same day, the best actinometer I know of is made by picking another negative of about the same depth and color as the one that is being printed, and putting this out in a printing frame side by side with it, with a little piece of the bichromated paper underneath it.

If the actinometer record is to be kept for another day's use, it is better to use printing-out paper for the purpose, as the image on bichromated paper changes on being kept, and is no longer so reliable a guide.

Some of the difficulties which the beginner in oil printing may experience must be put down, I am convinced, to the use of methylated spirit in the sensitizing bath. Commercial methylated spirit, I need hardly point out, is not a definite chemical compound; it

is alcohol, to which impurities have been deliberately added to prevent its consumption as a beverage. Because what one worker buys as methylated spirit is suitable for the process, it by no means follows that what another gets is similarly suitable; and I have traced a whole series of failures to this cause.

There is no need to use the spirit sensitizer, although it must be admitted that it is a convenience, and, therefore, my advice would be that should the paper appear not to work well with the spirit, that this should be omitted altogether. If a night can be allowed to intervene between sensitizing and printing, one of the baths in which the paper is immersed can be employed, but if instead of this, a plain five per cent solution of ammonium bichromate is used, applying it with a piece of flannel folded over a strip of glass, in exactly the same way as the spirit sensitizer is applied, it will be found that the paper will dry in an hour or two, if it is hung up in a fairly roomy cupboard or in a darkened room.

My own impression is that such paper takes the pigment more "kindly" than when the spirit sensitizer is used, which is, on the face of it, likely; since most commercial methylated spirit is not completely volatile, but as it evaporates leaves some slight trace of greasiness behind it.

The brushes are regarded, and rightly so, as the most expensive item of the equipment of the oil printer; but quite an unnecessary stress is laid upon the necessity for several of different sizes. One may go on making oil prints for years, using a single brush, which need not cost more than four or five shillings. It should be a good one, the best in fact, and having once been bought should be taken care of.

After use, it should be washed out at once and put away, remembering that its excellence depends not only on the quality of the hair of which it is made, but also on the smooth convex shape of its crown. Both of these are destroyed by injudicious washing after use, far more than they are likely to be by any degree of actual usage for inking up prints.

To cleanse the brush after use, a little gasoline should be poured out into an egg cup or similar receptable, and the brush dipped into it. The gasoline is all taken up at once, and the brush is then held by the small upper end of its handle, which is pressed between the two hands which are opened out flat. By rubbing the hands backwards and forwards, the brush can be made to revolve rapidly, and will throw off the gasoline with which it is charged, until it is almost dry.

When clean, it must be drawn into a cone of stiff paper, such as that in which it was originally sold, so that the hairs are pressed together again, and in this condition is hung up until it is required again for use.

This method of keeping it clean, it will be seen, does not involve any rubbing or friction of the hairs whatever, and a brush taken proper care of in this way will last in first rate working order for years.

Intensification and Reduction of Gaslight Prints

R. C. S. Whittingham, writing in *The Amateur Photographer,* says: This article is intended chiefly for those, beginners or otherwise, who desire to get good clean prints with good contrast, and who either cannot trouble to gauge the exposure of a gaslight print to a nicety or who have some negatives very weak in contrast that they wish to print from.

I therefore intend to give a method of intensifying a weak and unsatisfactory print to a deep purple-black, and also a method of intensifying a weak yellow-colored sepia-toned print to a good dark brown.

It is possible to obtain a good print from nearly every class of negative by using either vigorous or soft gaslight paper. There are certain negatives, however, such as under-exposed flashlight negatives, which, even after intensification and treatment with vigorous gaslight paper, do not give results of proper contrast. These, and prints weak in contrast from over-exposure, under-exposure, or other causes, are best treated by the process afterwards to be described.

Having printed a batch of prints or perhaps raked up some old ones, they are well washed free from hypo; in the case of old prints, washing will take the stiffness from the print and prevent any unnevenness in the action of the bleacher. Prints that are perfectly satisfactory may be put aside to dry or reserved for sepia toning. We have a choice of two bleachers for the rest. The mercury bleacher gives slightly more intensification than the chromium.

Potassium bichromate.. 1 ounce
Sodium chloride ..... 1 ounce
Sulphuric acid .....300 minims
Water ..... 10 ounces

or we can use:

Mercuric chloride ..... 90 grains
Hydrochloric acid ..... 50 minims
Water ..... 10 ounces

After bleaching in either of these bleachers the print is well washed for about five minutes and then immersed in the following developer:

A: Pyrogallic acid ..... 20 grains
Potassium metabisulphite 20 grains
Sodium sulphite ..... 3 drams
Water ..... 5 ounces

B: Sodium carbonate ..... 3 drams
Water ..... 5 ounces

Use equal parts of A and B. When fully developed the print is washed for about fifteen minutes. This treatment gives a beautiful violet-black color, which is much more pleasing than the finest black. The lighter the original the more pronounced will be the violet tone. This formula gives pure whites. If a cream one is desired, less sulphite may be used or some old pyro developer added. If the developer has to be used for a number of prints the dish should be washed each time it is used in order to prevent oxidation of the developer. If a jet black tone is desired metol or amidol should be used. To obtain the greatest possible intensification the print should be bleached in the mercury intensifier and developed with metol. It should be noted that for any great degree of intensification the original negative should have a good range of tones and should not be over-developed. I find an amidol developer brings out all there is in an under-exposed negative without giving hard contrasts. If a print is flat and also much too dark, it is bleached in the chromium bleacher and redeveloped with the following developer, using equal parts of A and B.

A: Potassium bromide .....10 grains
Hydroquinone .....85 grains
Sodium sulphite .....45 grains
Water ..... 5 ounces

B: Ammonium carbonate ....½ ounce
Water ..... 5 ounces

This gives a sepia tone which may be rebleached to a violet tone if desired.

The following table should make the foregoing methods perfectly clear:

Bleacher	Redeveloper	Remarks
1	Pyro	Violet with intensification.
2	Pyro	Violet with greater intensification.
1	Metol	Black with intensification.
2	Metol	Black with greater intensification.
2	Amidol	Black with less intensification.
1	Hydroquinone	Sepia.
1	Ferrous citrate.	Brown and sepia tones.

To secure a fine dark brown on weak yellow prints that have been toned by the sulphide process make up two solutions:

A: Silver nitrate .....1 dram
Water .....1 ounce

B: Ammonium carbonate .....1 ounce
Water .....5 ounces

Take one ounce of B and add solution A drop by drop until there is a slight permanent precipitate. Add another drop of B to dissolve this precipitate. This forms the stock toning solution. When it is desired to use it, one dram of this stock solution is added to one ounce of a ten per cent solution of hypo.

No matter how yellow or how old the print may be it is only necessary to immerse it in this solution to obtain a fine brown. In fact, all sulphide-toned gaslight prints benefit by this process. If the print is allowed to become too dark it must be reduced with a saturated solution of potassium cyanide. This treatment results in a chocolate tone.

To reduce a print immerse it in an ordinary ferricyanide bleacher until the desired tone is reached. If the process gets beyond control the print should be washed and then immersed in dilute developer. This process can be repeated backwards and forwards, and when the desired density is obtained it is only necessary to fix the prints in hypo and wash to render them perfectly permanent.

Panchromatic Negatives

Many photographers fail to obtain the most satisfactory results on panchromatic plates through omitting to give sufficient exposure. It is a fact not generally realized that in order to obtain a satisfactory rendering of the more difficult photographic colors, such as dark reds, greens, yellows, etc., ample exposure is essential, in order for them to be fully impressed upon the emulsion. Another misconception also exists as to the type of negative most to be desired. Panchromatic plates will be found to give negatives rather different looking from those on ordi-

nary brands, due to the fact that they contain a far wider range of tone. In order to obtain the full advantage of these tones the negative needs to be developed in order to bring out its full range of tonal qualities. It is a good plan to develop slightly further than would be the case with the ordinary emulsions in order to bring this about, though care must be taken not to carry the operation too far, or the snowy effect, almost like over-correction, which is sometimes encountered in panchromatic work may be met with. As a means of securing the best results, development by the tank method, using a time and temperature system, has much to recommend it.—*British Journal of Photography.*

Reducing Contrasts

It is generally believed that the persulphate reducer does not attack the thinner portions of a negative, confining its action to the high-lights only, but this is not altogether true. If this were so it would be possible to leave the image in the solution indefinitely, which we know is not the case. Therefore, it is well to remember that we have in the chromium intensifier a very useful means of improving negatives which have a considerable amount of thin shadow-detail together with dense high-lights which quite preclude the possibility of getting a really good print both in gradation and color by any process. Any attempt at reduction will still further weaken the thinner parts, very much if the ferricyanide and hypo method is used, and less if persulphate be employed; with the latter, however, the high-lights are reduced in so much greater a proportion that they are printable before the shadow-detail is hopelessly buried, and a much more harmonious result can be obtained. If we adopt the chromium method we can not only reduce the high-lights but intensify the shadow parts, so that the finished negative will closely approximate to one which has received full exposure and correct development. The procedure is exactly the same as for intensification, with one exception, that the redevelopment with amidol is not completed but arrested at any desired stage by rinsing and transferring to a normal fixing bath, which dissolves that portion of the dense image which has not been reconverted to the metallic state. Uneven development must be guarded against, and we have found it useful to blot off the surface moisture from the bleached image so that the developer commences its action evenly all over.—[This, from *The British Journal of Photography,* works excellently.—H. D'A. P.]

Novel Use For Stereoscopes

H. Robinson, writes in *The Amateur Photographer* as follows: The stereoscope with its set of stereograms is, as a drawing room entertainer, practically defunct. However, in many homes the little instrument might still be found, pushed away in some drawer or cupboard, if a search were organized.

Most people interested in such things know the manner in which a stereogram is made, but few seem to realize what an extremely charming effect can be gained by viewing two ordinary prints through the lenses, and causing them to superimpose or become as one picture. The mounting of the prints is exactly the same as for an orthodox stereogram. Care only has to be taken that the lower edges of the prints (assuming that they are trimmed to exactly the same point) are on the same straight line, and that the centers (or any chosen point) are two and a half inches apart.

The result obtained is that of a wonderfully brilliant and realistic enlargement of the mounted photograph. The extra brilliance gained when two flat prints are mounted is amazing.

Perhaps one of the most practical methods of applying the scheme is in the case of a hopelessly hard negative, which will not yield anything good on either printing-out paper or gaslight paper. To obtain a really good result two careful prints must be made—one upon, say, printing-out paper, for the harsh high-lights; and one on a contrasty gaslight paper, for the weak details in the shadows. The prints should then be mounted as described, and perfect detail will be seen all over the picture. The difference in color of the prints will not matter a bit, the brown of printing-out paper prints combining with the black of a developed print in such a manner as to almost give the impression of a two-color photograph. [The method of employing differently colored halves referred to above gives excellent effects with genuine stereograms. I used it as far back as ten years ago.—H. D'A. P.]

Save first; spend afterwards—Buy W. S. S.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Winter Evening Portraiture

An Indiana subscriber has sent me a number of prints, the result of some experiments made last winter, along the lines of home portraiture made in the evening with ordinary mazda lamps employed as the source of illumination. They are very unsatisfactory, as our correspondent admits; but he desires to renew the experimenting this winter and asks for a few suggestions, based on what we think the cause of the principal faults shown. The main fault is the harshness of the lighting, and this, as a rule, is the result of selecting too large a room in which to work. It is easily understood that the only light that can reach the shadows is that reflected by the walls, and therefore, a portrait taken in a large room, particularly if the walls are dark, will be entirely different from one taken in a small room with light colored walls. Incidentally, the exposure will be, with the same source of light in both cases, at least ten times as long with the first named conditions, and when it is realized that it is practically impossible to overexpose in this class of work, this alone becomes important. The harshness of the lighting can also be remedied somewhat by interposing a thin muslin or waxed tissue paper screen between the light and the sitter. Doing this one will notice a decided diminution of the brilliancy of the illumination upon the face and assume that the exposure is greatly prolonged, but such is really not the case, particularly in a small room with light colored walls, floor and ceiling, the latter not too high. In the case of our large room with the dark-colored walls the exposure would be increased somewhat, but then not to the extent one might imagine. Failing a small room, a white reflecting surface behind the light and another on the opposite side of the sitter will do much to remedy the difficulty. The other prominent fault is under-exposure. Using a smaller room will help, but much can be done by the simple expedient of giving more time. To make this possible, one should employ only the most easy poses and assure some support for the head. And by a support we do not mean something that can be leaned upon, although even that can often be arranged. All that is really required is something that gives contrast, something that the sitter can feel, something that is really more of a guide than a support. With that the sitter easily avoids the almost certain swaying of the head, because conscious of any movement away from the guide, a movement that the muscles instinctively prevent. With an easy pose, with the head resting upon something or supplied with a guide as suggested, exposures of five minutes duration are not out of the question. One will, of course, in giving the long exposures required, lose an occasional negative through motion, but in the majority of cases, the very slight motion attending winking the eyes, changing the expression, or even of moistening the lips, will not be recorded on the plate further than as a faint softening that is more desirable than otherwise. In even those cases in which our correspondent gave what he supposes are abnormally long exposures, forty seconds, the results would have been much better had four minutes been given. As we have pointed out, overexposure is practically out of the question and our correspondent need only make a few trials at securing such results to convince himself of the truth of this statement.

Printing for the Wood Engraver

A recent visitor explained that his local paper wanted him to print some pictures on boxwood blocks for subsequent engraving for wood cuts to be used as illustrations in the publication. The prints required must have no film to tear up under the tools used; in fact, it was explained that such photographs, made years ago when wood engraving was more popular, consisted of an image in a white, chalky sort of coating that did

not interfere with the gravers used. We cannot locate anyone who has had experience with this process, but it is quite fully described in some of the older books on photography; and, judging from the fact that it was worked by non-photographic persons about engraving plants, it cannot involve any great difficulty. Three solutions are required, together with an ordinary plain hypo bath and the white of one or more eggs, beaten to a froth and allowed to stand over night. The first or gelatine solution is made by putting a dram of gelatine to soak in a little warm water and when swelled, dissolving in four ounces of water by gentle heat. The silver nitrate solution is made by adding eighty grains to each ounce of distilled water; while the third or acid solution is made by dissolving forty grains of citric acid in each ounce of water. To prepare the wood, apply heated paraffin wax to the sides and bottom of the block to prevent moisture damaging it and then apply a thin, even coating made as follows: Rub one dram of the white of egg, a quarter of a dram of the gelatine solution, an eighth of an ounce of best zinc white and five grains of chloride of ammonia, to a paste in a glass mortar; adding, at the last and while continuing to rub, a mixture of thirty minims of each of the remaining or silver nitrate and citric acid solutions. Dry in the dark and print under the negative in the usual manner, using sunlight, and of course one will have to devise some arrangement other than a printing frame, because of the "type-high" thickness of the wood block. As these blocks are all carefully graded to a certain thickness, this making of a suitable holder is not a difficult matter. If one takes a piece of pine board and planes it down to just a shade less than this "type-high" thickness, a hole in the center to receive the block will present a fairly even surface of which the small block is a part. The negative can be adjusted to come just where wanted and two or three small tacks driven in the soft wood of the board to serve as guides and permit the negative to be removed to see the extent of printing. A piece of thick plate glass placed on top of the negative will supply the necessary pressure to the whole. After printing to a sufficient depth, the block is removed, held face down in the hypo solution for a few minutes, and then quickly washed and dried. The above should enable our visitor to work the process out to his satisfaction; in fact, the only solution costing anything is the silver one, and the amount used is so small that quite a little experimenting can be indulged in at a very low cost.

New Use For Stereo Lenses

There was a gentleman called the other day, and in the course of his conversation showed us some of his recent work, all 3½x5 prints. He explained that it had occurred to him that, as long as he enlarged most of his work, he might, in most cases, just as well take two exposures on his 5x7 plate, and in so doing halve the cost of that essential and also the work of developing. A dealer in second-hand cameras gladly exchanged a 5x7 Stereo Premo for his more salable regular form, and now he can, by using a cap over first one lens, and then the other, secure two 3½x5 negatives on each plate. In his camera case he carries a 5x7 lens on its own front-board and feels that he is fully equipped. Once in a while he changes to the large lens and forgets to take out the septum dividing the bellows for stereo work, but he thinks he will learn to avoid that mistake, in time. He had tried to use a sliding cardboard shield in front of the plate, using the centrally mounted 5x7 lens for the two exposures, but the lens was of a little too long focus for the smaller negatives, and in addition, the perspective always seemed somewhat sideways, as he expressed it.

Acid Fixing Bath Trouble

If the acetic acid is too strong or if too great an amount is used to balance the sulphite; or, if the sulphite is impure and contains sulphate, or has been allowed to turn to sulphate by exposure to air, milkiness may result. Or if the hardener is added to the fixing bath before the hypo is dissolved the same ill result may follow. Under no circumstances should the bath be made up by adding the hypo last. Make up a stock solution of the hardener and then add, from it, the required amount for the fresh solution of well dissolved hypo. That is the only way to do it. This milkiness shows that sulphur has been liberated and prints fixed in the bath will later discolor, showing brown or yellow spots, sometimes this staining extending over the entire print.

A Simple Reducer

Replying to an Oregon subscriber, the simplest reducer that we know of is twenty grains of permanganate of potash dissolved in sixteen ounces of water with a half dram of sulphuric acid added. This is better for harsh negatives than it is for clearing away surface fog and the like, this latter being best treated with the well known Farmer's reducer. This permanganate reducer is excellent for local reduction and for general use it acts well, the negative being immersed in the solution until the desired reduction is achieved when it is removed and washed a little before being racked away to dry.

Titles On Prints

A correspondent, one unknown, sent in the following with a letter from which it became detached, sometime during the last month or two. Make up a solution as follows:

Potassium iodide	2 ounces
Iodine	90 grains
Gum arabic	90 grains
Water	6 ounces

This is to be used as a writing ink with an ordinary pen, allowed to remain on the print for a short time and then washed off. The lettering being done on a dark part of the print, the ink acts as a reducer, leaving the title in white after the operation is complete. It is worth an experiment and we will be pleased to hear from any reader giving it a trial.

What Is a Perfect Negative?

The modern methods of negative development, such as by tank or other mechanical means, all tend to produce uniform results, but the question that every worker should ask himself is "Are my negatives uniformly good"? There are great differences of opinion as to what constitutes a perfect negative—There are devotees of the plucky negative, of the thinly graded negative, and of the happy medium. The general idea seems to be to get negatives of a quality to suit the printing process used.

If we examine the work of our leading high-class photographers, we invariably find that their prints are brilliant without any suggestion of hardness, fine gradation and "juicy" darks, and, in most cases that have come under our observation, the negatives have been distinctly on the plucky side, but always fully exposed.

In our opinion, the printing quality of a negative is more influenced by correct lighting of the sitter, and by full exposure, than by development. The high-class man makes a special study of lighting, but too often does the lower grade man use the same lighting for all kinds of sitters, and in order to preserve detail in, say a white dress, the tonality of the other parts is sacrificed. We are convinced that the perfect negative is only obtained by correct lighting to suit the gradation and color of the subject, followed by a full exposure upon a plate that will render the color values correctly. The development of such a plate should be a mechanical operation, and if by error it is over-developed, it will still yield a perfect result by increasing the exposure of the print.

When once the lighting and exposure are perfected, attention must be directed to ascertain what is the best degree of intensity to obtain on development, and whilst we do not in any way depreciate the thinly graded negative,—indeed we make special papers for them, we think that from the point of view of results and reduction of waste in printing, the density should be on the full side. Every printer knows that in order to obtain a perfect print from a thinly graded negative the exposure must be exact, whereas a print from a negative of greater resistance may have had an error in exposure of fifty or one hundred per cent and yet yield a good result. This is a point well worth consideration, and we may remind our friends of the perfect prints that the "old timers" used to produce from their pyro-ammonia negatives. These negatives, although appearing to be on the thin side, possessed the necessary pluck and resistance, and it was the proud boast of these workers to say that "they print well in any process".

We strongly recommend all photographers to be quite sure that their negatives are perfect, by concentrating upon correct lighting and color rendering, full exposure, and to avoid under-development.

Of course there are occasions when by force of circumstances a very thin, or very hard negative is produced, and for these negatives recourse must be had to the use of special papers made for the purpose.—RAJAR LIMITED, *Trade Notes.*

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

The Post Card Album

Through an oversight, the notice at the head of this department in the October issue was titled "The Ohio Albums", when it should have been indicated that it was the Post Card Albums that were being mentioned. Contributors and intended contributors to the post card albums will do well to turn back to this October issue and read what is said therein, accepting it as applying to themselves, regardless of their being located in Ohio or in any other state, the post card albums circulating throughout the country. Mr. Bieseman is doing a good work in getting these albums together and routing them to the contributors thereto, and he deserves all the encouragement the post card making members can give him.

Officers of the I. P. A.

F. B. Hinman, President, Evergreen, Jefferson County, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Claus Spreckels Building, San Francisco.

John Bieseman, Director Post Card Division, Hemlock, Ohio.

James B. Warner, Director Stereoscopic Division, 413-415 Claus Spreckels Building, San Francisco.

A. E. Davies, Director Western Lantern Slide Division, 1327 Grove St, Berkeley, Cal.

Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4663—E. H. Dietrichson, Photo Units, Post Field, Fort Sill, Okla.
Class 3.

4664—William Hipkiss, 55 3rd Ave., Scottdale, Pa.
Class 3.

4665—William Kildoyle, care Siber Hegner & Co., P. O. Box 16, Central, Tokyo, Japan.
2¼x3¼ and enlargements, various papers, of landscapes, figure studies, street scenes and miscellaneous views; for landscapes, home portraits and anything of interest; also public festivals in the United States, etc.
Class 1.

4666—Dr. J. Kynaston Couch, St. George's Terrace, Perth, W. Australia.
Class 2.

4667—Rudolph Roth, P. O. Box 312, Cosmopolis, Wash.
Class 2.

4668—Jack Arundel, Box 62, Charlotte, Mich.
Class 2.

4669—Weldon G. Draper, Edgeley, P. O., Sask., Canada.
2½x4¼, various papers, of farm and city views and landscapes; for views of California and other parts of the United States.
Class 1.

4670—Ralph R. Scobey, 1215 South State St., Syracuse, N. Y.
Various sizes, principally 3¼x5½ and 5x7, developing papers, of athletics and views; for athletic pictures, especially track; also views. Class 1.

4671—Irwin C. Dietze, 136 South Griffin Ave., Los Angeles, Cal.
Any size up to 2½x4¼ and 4x5, various papers, of miscellaneous subjects; for anything of interest. Class 1.

4672—Walter Curnutte, Rivesville, W. Va.
Class 2.

4673—Levi Horvatter, Catawba, W. Va.
3¼x4¼ and post cards, developing papers, of scenery of the country around my home town; for anything of interest. Class 1.

4674—A. W. Corderman, Schaller, Iowa.
3¼x5½, developing paper, of small portraits, water scenes and landscapes; for the same. Prints only. Class 1.

RENEWALS

4258—G. S. Wright, Tunnelton, Ind.
Post cards of general views; for the same.
Class 1.

4405—Louis H. Dreyer, Pautlind Hotel, Grand Rapids, Mich.
2¼x3¼ and 3¼x5½, developing papers, of views, buildings, landscapes and children (portraits, outdoor); for views, buildings, children, portraits, bathing scenes and girls; also figure studies. Prints only. Class 1.

4414—Oscar C. Kuehn, 3430 Caroline St., St. Louis, Mo.
3¼x5½, 4x6 and 6½x8½, developing papers, of views of Missouri Botanical Garden, flower studies, landscapes, park views, etc., also pinhole work; for any of the above subjects. Good work only sent or received. Post cards only unless otherwise agreed.
Class 1.

4522—Clarence Ostrom, 538 Freeman Ave., Kansas City, Kans.
3¼x5½ and 4x5, single weight, developing papers, of Graflex speed subjects, circus photographs, Colorado and Western scenery; for anything of interest. Good work only.
Class 1.

4540—John Stimpfl, care Alexander Hamilton Institute, Astor Place, New York.
2½x4¼, developing papers, of landscapes and miscellaneous scenes; for the same and mountain scenery. Class 1.

CHANGES OF ADDRESS

3317—Percy Neymann, Ph.D., 45 Stockton St., San Francisco, Cal.
(Was 1273 Filbert St.)

4172—J. C. Flint, 630 W. 9th St., Long Beach, Cal.
(Was Oakland, Cal.)

4457—Glenn L. Gebhardt, Box 226, Silverton, Colo.
(Was Canon City, Colo.)

4547—A. Delsman, 1426 E. Valley St., Seattle, Wash.
(Was 1202 Boyleston Ave.)

4579—Robt. C. Swanson, 470 64th Ave., West Allis, Wis.
(Was Laurium, Mich.)

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

California Camera Club

Frederick I. Monsen, F. R. G. S., lecturer and explorer, a well known member of the California Camera Club, gave the October club lecture on Friday evening, the twenty-fourth. His subject "Sketches from Mexico" was most interesting, as Dr. Monsen has given earlier lectures on our Southern neighbor, and this allowed for a comparison and contrast of former conditions with those of today.

The print exhibition, by Francis Orville Libby, salon work of Portland, Maine, included thirty multiple-gum prints, made from paper negatives. The original negatives are mostly 3¼x4¼, while the prints are all over 8x10, some being 14x18. Many of them have been shown abroad.

A new exhibition plan has been instituted. The main wall will, as heretofore, be reserved for special showings, such as Mr. Libby's, but one of the end walls is to be given over to monthly exhibitions of members' work, mounted and made for exhibition. This is to encourage the newer workers to make salon and exhibition prints, and to give them an opportunity to receive friendly and helpful criticisms from their fellow members. The other wall will be used for unmounted pictures in which the members may have a passing interest, such as those taken on club outings.

The demonstration for the month took place on the thirty-first, Edgar Felloes giving a talk on the home preparation of bichromated tissue and a description of a modified carbon process.

Chicago Camera Club

The club announces the showing of a beautiful set of slides by Mr. and Mrs. W. A. Rowley, for Wednesday evening, October first; the running of two reels of official French war pictures for a week later; a demonstration of studio practice for the evening of the fifteenth, with criticism of prints by the Print League to follow on the evening of the twenty-second. Two exhibitions will grace the walls during the month; the first, the work of Messrs. Bowen and Conheim, the last, that of Messrs. Estep and Morris. The regular Wednesday evening meetings are always made interesting and attractive along lines suggested by the above program, and amateurs of Chicago should avail themselves of the opportunities presented and become members. The club is located in the Northwestern University Building, 31 West Lake Street, where anyone interested would no doubt find a warm welcome on any Wednesday evening they might elect to call.

Elysian Camera Club

The making of lantern slides, which was the beginning of this season's educational demonstrations, for this popular Hoboken, New Jersey, camera club, was followed, on October third, by Richard Beyer's presentation of Coloring Lantern Slides. Other educational lectures and demonstrations will follow, and Hoboken amateurs wishing to secure a working knowledge of various branches of photography would do well to attend, particularly as the features of the club's activities have been made free to all those interested in photography in order that the scope of the club may be extended.

Boston Y. M. C A. Camera Club

This club has arranged a series of exhibits, each consisting of about twenty-five pictures, beginning with the work of Louis Fleckenstein of Los Angeles for October, and following with the pictures of other prominent pictorialists each month. The list includes the names of John Wallace Gillies and Edward R. Dickson of New York, Frederick F. Frittita of Baltimore, George Alexander of Chicago and Miss Margrethe Mather and Ford Sterling of Los Angeles. The club rooms, situated at 48 Boylston Street, will be open to the public every Wednesday evening and Saturday afternoons.

OUR BOOK SHELVES

"The Fine Art of Photography"

This is a new book by the well known writer on photographic subjects, Paul L. Anderson, the author of that popular work: "Pictorial Photography", which achieved such a phenomenal sale during the last few years. Mr. Anderson's new book does not cover the same ground as did his last, being devoted to an exposition of the artistic possibilities of photography and the means by which the artistic worker can develop them by his own efforts. The photographer interested in the pictorial possibilities of the camera will find this, as we believe it to be, one of the most informative books published on photography in recent years. Published by J. B. Lippincott Company, Washington Square, Philadelphia, Pennsylvania. We understand that Marsh & Company will act as distributors in this territory. Price of the book will be two dollars and fifty cents, postage extra, according to zones.

"Harrington's Australasian Photographic Instructor"

This is a bulky, meaty, comprehensive manual of about two hundred pages and some twenty-five fine illustrations in the form of reproductions of good pictures produced by the camera. In addition to the twenty-three chapters covering practically every phase of the subject, there are various tables at the end of the volume that are most useful and informative. The price, one shilling sixpence with postage, should come to about forty cents, for which amount in an international money order the publishers will no doubt gladly send a copy to any of our readers. The book is excellent value, and the fact that this is the seventh edition speaks for its popularity at home. Published by Harringtons, Limited, 376 George Street, Sydney, Australia.

"The Spell of Alsace"

Andre Hallays (translated by Frank Roy Fraprie) has given us, in this, the latest of the popular "Spell Series", a volume of absorbing interest, and particularly informative value. The treatment, the style, the relationship between parts, have all been given that satisfying quality that bespeaks either genius or great care, if not both, coupled with a full knowledge of the subject in hand. The reader will find the book both instructive and entertaining in a high degree, a large number of beautiful illustrations and a complete map adding to the effectiveness of the text matter. Published by The Page Company, Boston, Massachusetts. Price three dollars net.

"The Life of Frederick Courtenay Selous, D. S. O."

Frederick Selous, the worthy successor of Livingstone and Stanley, one of our own Roosevelt's closest friends, a noble character who laid down his own life in the service of his country in the late war at the age of sixty-five, deserves, to the full, the recognition of his sterling worth and remarkable achievements that this book cannot help but gain. His biography, as presented to us by the pen of J. G. Millais, himself the greatest living authority on big game, is as interesting and thrilling as an imaginative tale; in fact, it is hard to realize the truth of the activities and adventures so vividly yet modestly unfolded through chapter after chapter of this book. As a naturalist and author, his position is clearly defined; as a pioneer of empire and a patriot, his work stands forth strongly; as a hunter of big game, his years of braving the perils of the African jungle entitle him to our unqualified admiration. And that a worthy pen has placed this all before us is a matter for which we should be most thankful. The book is a handsome octavo of nearly four hundred pages with frontispiece portrait and fifteen full page illustrations. Published by Longmans, Green & Company, Fourth Avenue and Thirtieth Street, New York. Price six dollars, net.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Elsie V. Babcock still holds forth at Woodard, Clarke & Company's photographic department, Portland.

E. H. Stone, now with Eastman Kodak Company, was met in Portland. He still has the same old pipe he used in the good old days before the war; yes, before the San Francisco fire.

Jack Swern of Medford has taken unto himself a wife, none other than Miss Helen Dahl, one of the local belles. Good luck to them.

Miss Owens, with Ing & Allee, Sacramento, is a connoisseur in waists, her selections suggesting the best creative talent of Worth or some like artist in artistic drapery.

John Edwards of Sacramento is still making fuzzy photographs, but he certainly knows how to make them pictorial.

The Zink Studio of Chico looks very attractive since it was all fixed up. The amateur department, well out in front, would be a credit to a much larger city. The proprietor's son, Harry, is an able assistant.

W. S. Valentine has been very busy all summer. He says Redding is good enough for him.

Mervyn A. Galvin, a popular salesman with the city trade, is now with Lasky's, the well known Market Street dealers.

"Camera Club Supplies Contents of Magazine"

Under the above heading, the *Los Angeles Evening Express* says a few complimentary words about our last issue, in part:

"Residents of Southern California, all except one or two of whom are members of the Southern California Camera Club of Los Angeles, supplied the literary and photographic contents for a recent edition of a monthly magazine published in San Francisco in the interest of amateur and professional photographers.

Jammed full of interesting information and facts about the art of photography, the magazine is a veritable encyclopedia."

The *Express* is quite a live, readable newspaper, one that is a credit to its city and one that we would expect to be above exercising so much care to avoid any possibility of giving out any free advertising. Someone who read their most flattering description of what the members of the Southern California Camera Club had done might wish to secure a copy of this "veritable encyclopedia"; and, had the *Express* mentioned CAMERA CRAFT by name, instead of as "a monthly magazine published in San Francisco in the interest of amateur and professional photographers," he might have sastified his desire, and we would have sold another copy. Really, wouldn' that have been too bad?

Branch School Opened

The New York Institute of Photography announces the opening of a branch school at 104 Flatbush Avenue, Brooklyn, New York, opposite the Long Island Railroad Station. This location is right in the heart of the city and is easily reached from all parts of Long Island and Brooklyn. All credit for the success of the institution is due to the untiring efforts of S. McKee Lawhun, president, and Samuel Fortune Falk, secretary. The idea was conceived years ago to teach all branches of photography in an individual practical way, and the course as given now includes complete instruction in motion picture, commercial and portrait work. It is surprising to note how many new students are enrolled continually, through the personal recommendation of successful former graduates.

"Optical Glass"

Under the above title the Bausch & Lomb Optical Company of Rochester, New York, has gotten out a handsome, well illustrated, manual and catalogue of optical glass; a booklet that goes into the history, theory, manufacture and description of the product

that will prove a mine of original information to the reader. It is the first publication of its kind to be issued in this country, and is particularly timely by reason of marking the first step, as it were, in the separation of still another great industry from European domination. In addition to the several interesting illustrations covering the process of manufacture of optical glass, there is a valuable colored plate showing the color absorption of various kinds of glass used in lens making and other optical fields. The story of the firm's pioneer work along this line, together with a description of their increased activity therein during the war, is as interesting as it is informative. Copies can be obtained by writing to the firm mentioned above and the interested reader will do well to act upon this suggestion before the matter is overlooked.

A New Catalogue

The David Stern Company, 1112 Davisco Building, Madison Street, Chicago, Illinois, has just issued a new catalogue listing cameras, lenses, kodaks and supplies, as well as jewelry, talking machines, automobile accessories, books, etc., at money saving prices. The firm has been in business since 1885, it does quite a large mail order business, and camera users will find this new catalogue interesting.

Illinois College of Photography

It is with interest that we note one of the prize winners at the Sixth Pittsburgh Salon was Edward H. Weston. Mr. Weston is a former student who has gained a national reputation for his artistic work.

From private to major, would be an appropriate title for the interesting military experiences of James G. McNett. Major McNett, a student of 1913, and for some time stationed at Rochester, New York, was an instructor in the Army School of Photography.

Le Roy A. Berry, of Sutton, Vermont, one of our boys who donned the khaki, has just returned from overseas, having suffered the loss of a leg and receiving several other wounds. We deeply sympathize with Mr. Berry in his misfortune, and fully appreciate the motive that caused him to make this sacrifice.

It is much more fun to watch your money grow than to watch it go. Buy W. S. S.

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, for October 1, 1919, of CAMERA CRAFT, published monthly at San Francisco, State of California, County of San Francisco.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Fayette J. Clute, who, having been duly sworn according to law, deposes and says that he is the Editor of the CAMERA CRAFT and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

Publisher, Camera Craft Publishing Company, San Francisco, California; Editor, Fayette J. Clute, San Francisco, California; Managing Editor, Fayette J. Clute, San Francisco, California; Business Manager, Fayette J. Clute, San Francisco, California. That the owners are Camera Craft Publishing Company, San Francisco, California; Harriette E. Clute, Trustee, Hanford, California; Romaine F. Clute and Clifford H. Clute, Beneficiaries, Mountain View, California.

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(Signed) FAYETTE J. CLUTE, Editor.

Sworn to and subscribed before me this twenty-fourth day of September, 1919.

SID J. PALMER, Notary Public, in and for the City and County of San Francisco, State of California. My commission expires December thirty-first, 1922.

XXVI No. 12 DECEMBER, 1919 Price, 10 Cen

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CAMERA CRAFT

A Photographic Monthly

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By PILLSBURY PICTURES, INC.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXVI DECEMBER, 1919 No. 12

Elementary Carbon Printing

By Edgar Felloes

With Illustrations by the Author

It would be a revelation to the average amateur of today to know what the carbon or pigment-printing process is capable of giving him. The various colors it affords the worker should be one recommendation; the permanency and the long range of tones another, and on top of all, the simplicity of the process. We can accomplish with carbon anything that can be done with any other photographic printing process; and also, we can do some things even better than by any other. As compared to the developing papers, it is not quite so handy. One cannot take a sheet of paper from the packet and, with the aid of artificial light, have a print ready to mount in an hour or less. Carbon, being what would generally be classed as a daylight paper, is comparatively slow; but if we could only realize that we are not in such a desperate hurry, as we often think we are, we would have "lots more fun" in our photographic work, and often better results.

Amateurs generally are interested in learning whether it would not be possible to use some of their work to secure a monetary return for their efforts. We all must admit that there would be added zest if we could count on some compensation of this sort to at least partially offset the expenditure our hobby involves. This, unfortunately, is not easy, if we work in a dilettante fashion; if we wish returns we must work for them in a business-like way. These pages recently carried an instructive article, by Mr. Howe, on the subject of supplying editors with illustrative matter for their publications. I would call the reader's attention to another field, that of supplying novelties to the public direct. The

dear public will buy what it wants, what it thinks it wants, and even what it has no real use for; but no editor ever belonged to either of these two last classes of buyers. There are an endless variety of articles which may be attractively decorated by photographic means and there is a market for them; and furthermore, there is no process equal to carbon for this purpose. One has merely to transfer the picture to the surface of the article he wishes decorated; the picture becomes a part of the article itself, the result is totally different from the familiar pasted-on photograph, and people will pay more for it.

I will now speak of the process itself, for one must learn carbon printing in order to carry out the transfers called for above. I would strongly advise a novice to purchase the tissue ready made, for early efforts at least, though it is my intention to describe its home preparation to enable the worker to avail himself of special colors or shades. Carbon tissue consists of paper coated with a mixture of gelatine and pigment; the color we wish our print to be, is the pigment used in making the tissue. There are no after-toning operations, and the developing of the picture is accomplished simply with warm water. Materials: one packet of tissue, one packet of single transfer paper, one thermometer, one flat squeegee, two tin baking dishes for developing, one tin funnel, one earthenware dish for sensitizing, two ounces of C. P. bichromate of potash, two ounces of strong water of ammonia and a sheet of celluloid,—the stout kind with at least one side glossy. This last should be either black, red or orange in color.

Carbon tissue, as purchased, is unsensitized, and therefore must be subjected to a sensitizer; an average strength of bath is four per cent; this being used for what is generally understood as the average negative. For thin negatives, reduce the strength to two per cent by adding an equal amount of water. A bath of six per cent is recommended for strong negatives. Tissue sensitized in a strong bath prints quicker than that given a weak one, and the paper must be handled more carefully, especially so as carbon tissue, when exposed, is subject to the continued action of the light that has acted upon it in printing, even after the exposed tissue has been placed in the dark. The following gives the four per cent bath which will be more generally useful:

Bichromate of Potash, C. P.	1½ ounces
Ammonia	40 minims
Water	40 ounces

The ammonia is added to neutralize acidity, if any, in the bichromate. There is another method of sensitizing, employing what is known as the spirit sensitizer, but as it may confuse here I will defer speaking of it until later.

To sensitize, pour sufficient sensitizer into the earthenware dish to give about two inches of solution, if possible. This can be used several times over or until it turns dark, when it should be discarded. Take a piece of the tissue and slide it under the solution, face down, removing any air bells on the back as soon as they form, while examining, at the same time, the tissue on the coated side with the same object in view; even sensitizing being quite important. In about three minutes, or as soon as the tissue ceases to curl and lies flat, remove it, drawing its face over the edge of the dish to save the surplus solution. Place the now

IN HAPPY CHILDHOOD DAYS—Carbon print made twenty years ago

sensitized tissue face down upon a clean sheet of celluloid and apply the squeegee gently, removing all surplus moisture into the sink. With a photo clip at each upper corner, hang up to dry. The celluloid only needs to be clean, no waxing is necessary. When one becomes practiced, two pieces of tissue, even three, may be put in the bath, one following the other as soon as the air bells are removed. But it must be remembered that the bichromate has a solvent action on the gelatine, therefore the tissue should be withdrawn as soon as sensitizing is completed.

I should mention that the bichromate solution is poisonous and care must be exercised that none of it gets into any cuts or tender places on the hands. It is a wise precaution to use rubber finger tips; in fact, I always wear rubber gloves while engaged in sensitizing. The tissue, while wet, does not appear to be sensitive, and therefore, this work of sensitizing can be safely done in subdued daylight. In my own practice I use the kitchen in the evening, and when all the tissue needed is hung up, pull down the window shade. The tissue must have a free circulation of air, but no heat; the quicker it dries the better. Beware of the so-called drying cupboard, unless specially constructed. That is why I favor the kitchen. The light cannot affect the tissue in front, especially if the celluloid is black or of a non-actinic color, and the paper backing also does its part in protecting the sensitized surface. The tissue should be dry in about six hours. Sometimes it will happen, especially if the drying is rapid, that the tissue will detach itself from its support; and, needless to say, such sheets must be gathered up and placed in a safe place before daylight can reach them. The

dry, sensitized tissue is very sensitive and must be protected from white light. I have never failed to get good working tissue by following the practice as described above.

Negatives intended for carbon printing require what is called a "safe edge". This consists of an opaque edging or border around the negative. It may consist of a band of opaque paint, or a strip of lantern slide binding, and one-eighth of an inch in width is sufficient. With glass negatives it is advantageous to place this edging on the glass side. The object of this border is to produce an edging of unprinted or soluble tissue around the printed picture, to the end that one can more readily develop the print. Without such a border the print is liable to lift from its support, especially should there be strong shadows, which means fully exposed parts, at the margins.

As carbon prints, except in the lighter shades, do not show a visible image on exposure, it will be necessary to devise some method of timing the printing. To this end actinometers are used; or, one may use another negative of similar printing quality as a "pilot". As the tissue sensitized by the bath given above is about the same sensitiveness as Solio paper, one need only place a piece of this last under his "pilot" negative, and put it to print at the same time. If the negative the carbon print is to be made from is a film, place it in the printing frame gelatine side down. It is necessary to print with the celluloid side in contact with the sensitive tissue to avoid reversal of the transferred picture from left to right. If the negative is on glass and the print made in the ordinary way, two transfers will be required to make the picture come right or unreversed. Having placed the film, as explained, in the frame, the tissue comes next with a piece of oil cloth or rubber sheeting, as backing, on top of all. Close the frame and place both printing frames in the daylight at the same time. All handling of the dry tissue must be done in a safelight. When the printing is judged nearly sufficient, examine the Solio print, taking care that the frame holding the carbon print be covered or turned over while doing so in order that it may not print longer. The Solio paper should be printed until the pretty or light proof stage is reached, at which point the carbon will have been sufficiently exposed. It is good practice for the novice to carry his print on to the finished stage and not allow too much time to elapse between printing and the after operations. Two hours should be the limit, unless one is provided with proper means for storage.

The transfer: take a tin dish and fill it with cold water. Then, holding a sheet of transfer paper by one end, slide it into the water, face up, leaving it until flat. This should be more or less larger than the tissue to be transferred. Then take the printed carbon tissue and slide it into the water face down. Watch the tissue closely, as it will have a tendency to curl inwards and perhaps cause a portion to rise above the surface of the water, which last must not be allowed. Next the tissue will flatten and then you will notice an inclination to curve backwards, and it is just between these two stages that the tissue and transfer paper must be removed. With the thumb and finger of each hand, grasp the two sheets, the tissue and transfer paper together, by their upper edges and withdraw them from the tray. As this is done the water will run out from

A PORTRAIT IN SEPIA CARBON—As rich today as when made in 1898

between and the two will cling closely together. Remove them to a sheet of glass, tissue uppermost, and squeegee together, using a flat squeegee, a gentle stroke, and working from the center outward. This done, place some absorbent or blotting paper on top, then another sheet of glass, and finally a moderate weight on top of all. The two should remain under pressure about twenty minutes, during which time other prints may be treated in the same way. It is not necessary to have glass between each pair, the absorbent paper being sufficient.

Development is accomplished with water only, preferably warm. Fill one of the tin dishes with water at about one hundred degrees, slide the tissue, with its adhering transfer paper, into this, tissue side up, remove all air bells and allow to soak. A second print may be started in another dish while waiting. In a few minutes the slimey pigment will be seen oozing from the sides of the tissue, when, with a pin or anything suitable, one can lift a corner of the tissue backing away from the transfer paper, take hold of it with thumb and finger, and gently remove. Do not use force; it should come away easily; if not, let the print soak longer and then try at another corner. In removing the tissue backing, which must always be done under warm water, effect the removal by a sort of peeling or rolling pull, never an upward one. As soon as the tissue backing paper is removed, discard it. The picture, embedded in more or less soluble gelatine, will then be left adhering to the transfer paper, ready for the completion of development. This last is accomplished by rocking the tray and occasionally laving the print with the warm water. If the print is light in character and the tray only large enough to accommodate it, a new supply of

the warm water may be required by reason of the large amount of pigment that washed out. The print may be supported upon a sheet of glass, slid under it in the dish and one end raised, the water being splashed against it with the hand or with a spoon.

If the print does not develop easily, owing perhaps to over-exposure, the temperature of the water may be increased, but there is always a possibility of washing out desirable half-tones by so doing. It is better to keep the water at one hundred degrees and allow the print time to clear itself, taking up one of the other prints meanwhile. In cases where the half-tones are deficient, one of two causes is indicated: either the exposure was insufficient or the temperature of the developing water was too high. When the print is sufficiently developed, rinse it in cold water and hang up to dry. Some operators place the rinsed prints in an alum bath, rinse again and dry, but I never use alum. The prints reproduced herewith are twenty years old, and had no alum and no particular care, but they are just as good as when made, except for the quite natural slight yellowing of the paper through exposure. This described the working of the carbon process by single transfer.

The spirit, or quick drying sensitizer, consists of a ten per cent solution of ammonium or potassium bichromate, C. P., used in connection with alcohol or acetone, the latter by preference, as pure alcohol is no longer obtainable. As every ounce of this ten per cent stock solution contains forty-eight grains of bichromate, to make up the most generally useful or four per cent bath, one must add one and one-half ounces of acetone to each ounce of the stock solution. A sensitizing bath of two and one-half per cent strength is made by adding to each ounce of stock solution one ounce of acetone and for a five per cent bath, one and one-half ounces of acetone should be added to each ounce of the stock solution, and so on.

Ammonium bichromate is less liable to be acid than the potassium bichromate and it is slightly more soluble, which is a convenience. To use this sensitizer, pin the tissue to a board covered with a clean blotter and apply with a broad camel's hair brush. Do not use the brush too full, make rapid strokes, crossways and up and down, and apply three coatings, working in a safelight. The tissue is dry and ready for use in about twenty minutes, depending on the humidity of the atmosphere. Any surplus of made-up sensitizing bath should be thrown away as it becomes turbid within a few hours. This sensitizer is more expensive than the one called for by the first method and is recommended only where time-saving is essential.

This is a good working basis for one's first experiments with the carbon process; in fact, with the many colors of tissue available, and using either film negatives or such glass ones as a reversal of the picture from right to left does not matter, is all that is necessary. In a future separate and distinct article from this, I will give details covering the making of double transfer by using a temporary support for the first or reversed one, thus bringing the picture to its normal position as regards right and left. The home production of the carbon tissue, a very simple process, will also be taken up, along with other matters pertaining to the subject.

Photography On a Winter's Day

By Louis R. Murray

With Illustrations by the Author

One morning, early in January, on starting for the post office, as is my wont, before seven o'clock, I found it quite dark owing to the sky being heavily overcast. The mail was quite heavy, and consequently it was after eight before I was ready to leave; the clouds then being less heavy but everything was covered with a beautiful, hoary frost that gripped everything in sight. Fortunately, it was not very cold and the sun was struggling to break through the dense fog that prevailed and that accounted for the thick deposit of frost crystals. Of course I had my 3A Kodak with me, as usual, and it enabled me to secure some beautiful souvenirs of the rather infrequent spectacle.

When I had gone about half way over my route the sun began to make its appearance, showing somewhat faintly through the mist and frost. It showed plainly but yet not so brilliantly that it could not be photographed. I placed the kodak quite near the ground and giving one-fifth second, stop f-16, secured "The Winter Moon". Proceeding, while the sun became brighter, "The Garden in Winter" was made a few blocks further on. This may not be a picture, but it appeals to me by reason of its softness and its truthfulness to the scene that it portrays. Still further on I noticed a slight break in the clouds overhead with some frost-covered branches intervening. The clouds were moving slowly

A BLUSTERING SPELL

THE GARDEN IN WINTER

WHEN SNOW HAS FALLEN

and so I pointed the camera well upward and made another fifth of a second exposure. "Frost Laden Branches" is the result. By this time the mist and frost in the air had disappeared, leaving everything shining as if covered with pearls and diamonds, because of the deep covering of frost crystals. "When Snow Has Fallen" was made because of its quite characteristic presentation of a scene that we all know and enjoy.

These four are but a part of the negatives that I made that day. They have been selected because of their somewhat divergent character. In the eight hours consumed in going over my route I made eighteen exposures, and I can assure the reader that this is an unusual number for me to make in one day; I sometimes carrying the camera an entire week without making a single exposure. But the conditions on this particular day were ideal; in fact, while waiting for a trolley to take me home at the noon hour, a heavy bank of clouds passed over the city, going at tremendous speed, depositing a thick, damp snow as it went. In a few seconds the streets were deserted. This presented a chance for a different kind of picture. Opening my lens to f-7.7 and setting the shutter at one twenty-fifth of a second, "A Blustering Spell" resulted.

Of course, I had to spend a few minutes cleaning the melting snow off my kodak with a handkerchief, but this was done after I boarded the car. This could have been avoided by using a cover for the camera, but no harm had been

FROST LADEN BRANCHES

THE WINTER MOON

done, and it took but a moment to make everything dry and clean. The point I wish to make is, the camera should not be put aside so readily just because the winter months come on and the foliage is not so luxuriant as in the summer period. There are pictures to be made and pictures that will add to the variety and interest of one's collection. The examples shown herewith are not offered as examples of photographic art, and yet I believe they have some merit. They at least suggest what can be done and I am quite sure that the worker with an appreciation of artistic possibilities will find just as many opportunities for a display of his skill during the winter months as during any other period of the year.

Lose this day loitering—'twill be the same story
Tomorrow—and the next more dilatory;
Then indecision brings its own delays,
And days are lost lamenting over days.
Are you in earnest? Seize this very minute—
What you can do, or dream you can, begin it.
Courage has genius, power and magic in it;
Only engage, and then the mind grows heated—
Begin it and the work will be completed.—GOETHE.

The Simplicity of Copying

By Victor A. Ulrich

With Illustrations by the Author

Copying with the camera is so simple, in itself; the necessary apparatus and materials, undoubtedly already in the possession of many of you, are so readily obtainable; the details are so easily carried out by anyone with a working knowledge of photography, that it seems rather preposterous for me to attempt anything very ambitious in the way of instructions. The proper apparatus and materials to work with, a little knowledge of photography combined with a little common sense and judgment, and any of you can make perfect copies. I will try and outline a few simple rules and reasons, and attempt to suggest the proper apparatus. These you can accept to be used in combination with your own good judgment.

Quite naturally the reader with little or no knowledge of the subject will ask, or desire to be informed concerning these three questions: What is a copy? Why is a copy? and, How is a copy made? The answer to the first queston is that a copy is a picture taken of a picture, painting, poster, letter, legal document, drawing, blue print, newspaper or magazine clipping, tintype, daguerreotype, or anything of that nature. A copy is the photographic reproduction of these things, reproductions that can be made either larger or smaller than the original, at will, limited only by the size and bellows capacity of the camera and the focal length of the lens employed. We will learn more about this under answer to the third question. Question number two: Why is a copy? The reasons for copying are even more varied than the things to be copied. In the work of the commercial copying plant the reason which seems to take first place is the preserving and reproducing of pictures of people who have passed away. Relatives of soldiers demand a large share of this work at present, and those of influenza victims are probably a close second. The next most common demand for copying is to obtain reproductions of all kinds of pictures, the original negatives of which are either lost, destroyed or otherwise unavailable for use. Another reason for copying is to secure reproductions of art subjects to be worked up by hand, in color or otherwise, and sold at good prices in the art stores. Specific examples are most of the sea-gull pictures seen in the local art stores; these being produced by printing or enlarging a sea gull, perhaps from a negative taken on the ferryboat while crossing the bay, into a suitable scene enlarged from another negative. The combined print is retouched and worked up by hand, as necessary, and then copied, producing a new negative. The finished results are mostly enlargements made with the soft-focus lens. However, this is not a description of combination printing, but of copying. To return to our subject, another important function of copying is the preserv-

ing and recording of valuable letters or legal documents, or the detecting of forgery or altered checks, such last being generally quite apparent when copied with a full color value plate, such as the Wratten Panchromatic. Slight differences in the color of ink used in alterations, not readily apparent to the eye, will show in the properly made copy.

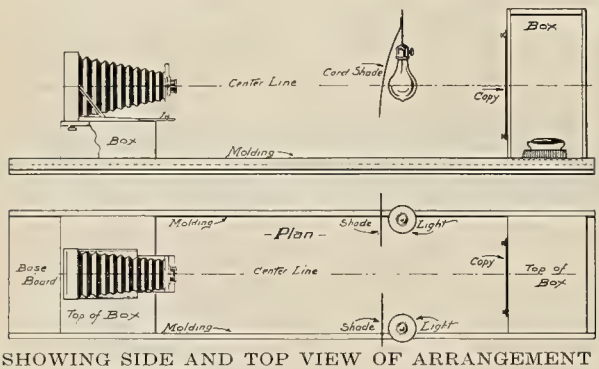
Another use for copying is the making of enlarged negatives. This method gives much better results than does the making of a contact posititve from the small negative and then making an enlarged negative therefrom. The method is this: Suppose you have a small camera, a vest-pocket kodak, or one of the larger folding styles, producing first-class negatives from which you want a number of small enlargements, say postcard size, 5x7 or larger. Make an enlargement from each, about the same size you expect to finish them, or a little larger, although the exact size is of no importance, and preferably on P. M. C. No. 6, a double-weight, smooth-surface paper. Glossy bromide is good, but it is more liable to catch reflections on the surface when being copied. Make these enlargements as nearly perfect as possible, shading out details in the high-lights and holding back shadows to keep them from blocking up and getting too black. Make your enlargement plain, without a border, and develop it slightly darker than usual. After the enlargement is dry, take it, untrimmed, and work it up by hand, as necessary. A great deal can be done with a common lead pencil, preferably one having no gloss, darkening the light places, filling out spots and the like. A sharp pen-knife, used as a scraper, will also be useful. Copy this worked-up enlargement to the desired size and the result will be a first-class enlarged negative from which you can make any number of contact prints desired. Furthermore, you can use any printing medium, even carbon, gum, Kodak velvet green and Aristo self-toning, on all of which it would be impractical to enlarge direct.

We will now pass on to the third question: How is a copy made? In the first place, one must have a long-bellows camera, one with a bellows at least twice as long as the focal length of the lens to be used; for, in making a copy the same size as the oiginal, say with a lens of six inches focus, the bellows must be drawn out twelve inches. The distance from the drawn out lens to the picture being copied will also be twelve inches. This is a fixed rule always, regardless of what lens you may be using; that the distance from copy to lens and from lens to plate, or film, will be equal and will always be twice the focal length of the lens; or in all, from copy on the easel to plate in the camera, four times the focal length of the lens, when copying same size.

As to the apparatus used for copying, the two illustrations herewith show what have been used in a commercial way, apparatus that I have designed and built for firms doing quite an amount of this work. One can see that there is nothing very elaborate about either. In one is shown a practical and effective method of securing equal illumination from four tungsten lamps, arranged two on each side in a trough-shaped screen, lined with white sheet asbestos, that throws the light on the copy and at the same time shields it from the lens. In the other the principal feature is the simple arrangement for tilting and sliding the camera to bring the image just where wanted on the focusing screen with-

out the necessity of the more time-consuming shifting of the copy in the printing frame. In this last the copy lighting arrangement used, practically the same as the first, is not shown.

For work at home, the occasional copying that the amateur will do, a much more simple, if slightly less convenient, arrangement will suffice. All that is needed is a straight, smooth board about three or four feet long, preferably with cleats nailed along each side of its upper surface to assure alignment of the camera support and the box used as an easel for the copy. These two last elements should either be of the proper width to just fit between the cleats or the latter nailed on in such a position as to meet them on both sides. The support for the camera, the worker's own instrument, need be only a small box of sufficient size to bring the lens about in line with the center of what one thinks will be the largest picture copied. A hole made in the bottom or side of this box, whichever is used uppermost, permits the use of a tripod screw to hold the camera firmly in position in the sliding box. This at one end of the board and a taller box at the other, the bottom of the latter being turned towards the camera to serve as an easel upon which the picture or other copy is to be pinned, completes the apparatus. A flat-iron or other weight placed in the easel box, from behind, will give it more stability.

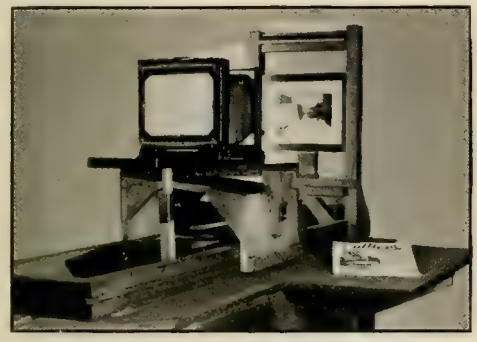


SHOWING SIDE AND TOP VIEW OF ARRANGEMENT FOR HOME WORK

Two drop lights, one on each side of the easel, with pieces of cardboard behind them, furnish the illumination. These should be on a level with the center of the easel and about ten inches or a foot in front and to the sides thereof. The two strips of cardboard can be attached to the respective cords above the lamps to keep the lights from shining into the lens, as well as serving as reflectors to throw a stronger light on the copy. If these two drop lights are stationary, their illumination of the copy can be judged by sliding the whole apparatus back and forth between them, and their distance apart can be altered by tying a string from one cord to the other. One can also change their height in relation to the copy on the easel by the simple expedient of raising or lowering the apparatus, this last being generally supported on anything like a couple of chair backs or a table, anything on which the baseboard can rest fairly level and firm.

As I have suggested, the picture being copied must be equally illuminated on both sides. Take, for example, a velvet surface print and light it strongly from one side and the resulting copy will be from at least one-third to one-half covered with small, more or less white spots, like flakes of snow. The reason for this is that the velvet print is full of microscopic hills and valleys that are semi-glossy and reflect light. These little hills and valleys mut be flooded, on all

sides alike, with sufficient light to destroy these reflections . Any rough surface paper will copy in much the same way, but usually show the white spots to a lesser extent because they present mainly only the shadows of the hills. One way to entirely eliminate grain in copying velvet or rough papers, should one's best effect at lighting fail, is to soak the print in warm gelatine solution and squeegee it onto a clean glass, through which last it is copied. If the print is valuable, or one you have any doubts as to the paper on which it is made standing the warm gelatine, do not take a chance, as the safe removal from the glass is



THE TWO ARRANGEMENTS MENTIONED AS BEING USED IN A COMMERCIAL WAY

doubtful, particularly with some of the old style papers. Glycerine will sometimes answer quite as well as gelatine, if used cold and all air bells are worked out with fingers. Keep the picture in a strong back printing frame, under several blotters, and do not let the glycerine get onto the frame. It will readily wash off the print and glass, also off one's hands.

A few words about the kind of prints one is asked to copy and the kind of plates or films to be used. One has little or no choice as to the kind of prints to be copied, he must take them as they come; but, when one makes a print or enlargement with the intention of copying, he should make it on a fine-grained, smooth-surface paper like P. M. C. No. 6. The glossy kind is more liable to give surface reflections and does not lend itself to hand work with pencil. Make the enlargement bright, but not contrasty, in fact, rather soft is better, and get all possible detail in both high-lights and shadows, for you will generally lose a little of the former in copying. The old fashion Solio prints are excellent, while the modern sepia prints are rather poor, the shadow detail in the latter having a tendency to block up and the high-light detail is inclined to get lost.

As to the kind of plates or film to use, my own preference, and a rather strong one, is for the Eastman Portrait film, the Commercial, Commercial Ortho and Process brands included. These I use almost exclusively and my only regret is that they are not made in a panchromatic emulsion for securing full color values. These films are light, non-breakable, non-curling, non-halation and non-trouble generally. For all around copying work the Commercial Ortho is the best, as a ray filter or yellow screen can be used to help in the proper rendering of colored copies or in copying sepia prints, which last are rendered a little better with this film and a ray filter. In copying paintings or colored objects where full and true color values are wanted, panchromatic plates and a

yellow filter must be used. For example, it is almost impossible to copy commercial blue prints without a panchromatic plate and a red filter; but these last, used together, render the blue totally black and the lines white. There are a great variety of filters for special uses, but I will not go into detail concerning them as any one interested therein can get from the little book supplied by the Eastman Kodak Company entitled "Color Plates and Filters for Commercial Photography", very full and definite information on the subject.

The Process film is particularly useful for copying anything in which great contrast is desired; black and white drawings, newspaper and magazine clippings, cartoons, or even photographs which are very flat, faded or lacking in contrast, all of which come under this head. This film is much slower than the Commercial Ortho, that is to say, when copying an ordinary print. For copying a black and white line drawing or printing on white paper, it requires about the same or only a trifle more exposure than would the Commercial or Commercial Ortho film. For the desired contrast, develop as far as it will go, and then, if necessary, slightly reduce with ferricyanide and hypo.

The development of portrait films is similar to that of ordinary prints; a number can be placed in the tray and handled back and forth, over each other, care being taken to avoid scratches, as they are coated with gelatine on both sides. Clipping the corners will greatly minimize the danger. After being fixed and washed they should be wiped with a wad of damp cotton on both sides before being hung up to dry, otherwise the scum which they have collected will remain and look bad on the dry negative, although not visible while wet. Lay them on a sheet of glass or back of a smooth, clean tray for this wiping, and hang up by one corner to dry. Be sure they cannot come together or touch anything, and do not change their position, while drying.

As to plates for copying, any of the slow or medium slow brands are suitable. The Standard Orthonon is a good all around plate for copying; and, being non-halation and orthochromatic, it will render colors fairly correct where too much is not required. For full and accurate color recording, nothing but a panchromatic, or Cramer spectrum, will answer. These must be developed in a deep green safelight, or in total darkness, as they are very sensitive to red. The best developers in each case are those recommended by the makers of the plates or films one is using. I will give three such formulas that I use.

Pyro and M.-Q. developer for general use:

M.-Q. stock solution as given by Eastman Company for Velox papers	½ ounce
Sodium sulphite, anhydrous	35 grains
Pyro	5 grains
Water	8 ounces

Keep the M.-Q. stock solution on hand and mix up this developer only as wanted for use. It does not keep well but is excellent for Portrait film.

Acid-Amidol developer, stock solution form:

Sodium bisulphite	400 grains
Sodium sulphite, anhydrous	4 ounces
Water, hot	32 ounces

This is a stock solution that keeps well. To use, take:

Amidol	40 grains
Potassium Bromide, saturated solution	5 drops
Stock solution as above	3 ounces
Water	13 ounces

This gives a normal developer, but any degree of density, from very soft to quite hard can be obtained by varying the amount of amidol, less giving soft results and more producing contrast. From one quarter to about double the amount given above is the allowable range.

Process film developer for extreme density:

A:	Sodium bisulphite	¾ ounce
	Hydroquinone	¾ ounce
	Potassium bromide	¾ ounce
	Water to	32 ounces
B:	Sodium hydrate	1½ ounces
	Water to	32 ounces

For use take equal parts of A and B. This developer gives the maximum amount of density and I find it particularly useful for reproductions of writing, printing or black and white sketches and the like where extreme contrast is desired.

One last word about copying and that is: Never copy anything which bears the word "Copyright" or a C within a circle, for in so doing one is liable to start something that one of Uncle Sam's hired men will finish for him.

Strictly speaking, the imagination is never governed; it is always the ruling and divine power, and the rest of the man is to it only as an instrument which it sounds, or a tablet on which it writes; clearly and sublimely if the wax be smooth and the strings true, grotesquely and wildly if they are strained and broken.—RUSKIN.

The Light and the Exposure

By L. E. Rea

With Illustrations by the Author

What follows is not a theory, because it is entirely too practical; it is not entirely new, because based on the known, somewhat overlooked fact that it is the light reflected into the lens and not the light falling on the subject, that affects the plate or film, and in doing so calls for a longer or shorter exposure. To proceed:

Most amateur photographers, as well as a great many professionals, judge the exposure by the strength of the light rather than by the light-reflecting character of the scene or object being photographed. Choosing a bright, sunny day, during the summer months, and somewhere beween nine-thirty and two-thirty, we know that while our exposures can be made shorter than at any other time of the year or hour of the day, the same exposures will not answer for all subjects. What that variation is becomes the burning question.

Let us imagine a bill-board, one about twice as long as it is high, with one end covered with white paper and the other with black plush, the sunlight falling evenly upon the whole surface. While the same amount of light falls upon both the white and the black surfaces, entirely different results are produced. The light falling upon the black plush is absorbed and stopped right there, none of it being reflected into the lens; while the white end of the bill-board, the end covered with white paper, does not absorb any of the light but reflects it through the lens to the plate or film. In this bill-board subject we have the material for a picture in its crudest form. All pictures, as produced by the camera, are composed of these two elements, together with intermediate gradations, combined in varying proportions.

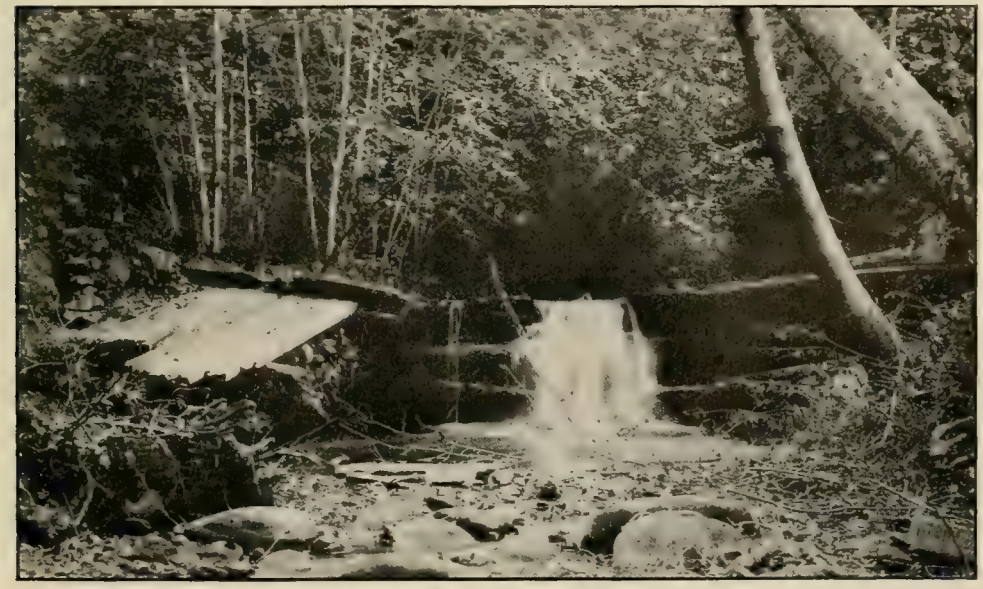
Now, if we set our camera up before a scene that favors the white paper covered end of our bill-board, for example, a beach scene, a bay or lake view, a birds-eye view, or something similar, we know a short exposure is required. The natural conclusion is that the smallest diaphragm compatible with other conditions such as sensitiveness of emulsion and speed of shutter, would be desirable. On the other hand, should our subject partake of the nature of the dark end of our bill-board, say a street scene, park view, shaded driveway or the like, all fairly open to the sky and fully illuminated, we will find, upon trial, that a diaphragm opening of twice the size before used will be required to secure the same relative exposure. In this way we find that the exposure is mainly a matter of absorption and reflection.

The two illustrations herewith are examples in point. The first or beach scene was made with a small stop and a very quick exposure, as it partakes of the nature of the white end of our bill-board. The other, the pretty little water

A SCENE FAVORING THE WHITE-PAPER END OF OUR BILL-BOARD—June, 11:30 a. m., f-22, 1/25 second exposure on Eastman film

fall in the deep shade, partakes of the black end and therefore was given double the exposure with a stop of double the size of the other. It will be seen that this difference in the two exposures was justified by the results.

If in doubt as to the strength of the light reflected by the scene to be photographed, one can have recourse to a bit of mirror carried in the pocket for the purpose. By looking intensely for a few moments, at the principal feature of the scene before you, and then examine your eyes in the mirror, the contrac-



A SCENE FAVORING THE BLACK END OF OUR BILL-BOARD—June, 1 p. m., f-16, 1/10 second exposure on Eastman film

tion of the iris of the eye will indicate the strength of the reflected light. If the iris of the eyes is found to have contracted to their smallest dimensions, you can rest assured that the reflected light is quite strong. The amount of this contraction or expansion will indicate to which end of the bill-board your subject inclines. I should add, in conclusion, that black, dark green and red are absorptive of light, while blues and light grays reflect.

Photography in the Tall Timber

By B. W. Leeson

With Illustrations by the Author

The topography of this section of the country, the north end of Vancouver Island, is somewhat different from that with which the average reader of CAMERA CRAFT is familiar, I should imagine. This is a country of big timber and vast stretches of water. When one is out of the timber it is sky and water, and little else; a real case of "hy-ack" with the exposure, "hy-ack" being Indian for hurry up. But when one turns about and takes one of our trails leading inland, there is no longer any "hy-ack" with the shutter; one must simply call the scene an interior, as the painters call all their woodland scenes, and give an exposure accordingly. One's eyes become accustomed to the lessened light, and there is not a full realization of the necessity of long exposures. In addition to the diminished light there is the excessive contrast, so that over-exposure becomes almost an impossibility; at least an improbability if anywhere within reason. I have frequently given from three to five minutes, using stop f-16, only to regret not having given double the time.

The real truth of the matter is, there is "nothing to" this question of right exposure with this class of subjects. All one has to do is to give plenty of time. These subjects are really interiors, in fact, they receive just about as much illumination as the average room interior, and the contrasts are, if anything, even greater. If the reader has had any experience in taking interiors he knows that such a thing as an over-exposed one is a very, very rare occurrence. An exposure that one would consider about right, still leaves many of the dark corners lacking in detail that the eye could see in the room itself, yet the picture is acceptable. Doubling the time would simply give one detail in these shadows without in any way harming the better lighted portions. Even more than double the time would do no damage. We would simply be following out the old injunction to expose for the shadows and let the high-lights take care of themselves. In fact, while the reader might think that increasing the exposure would block up the high-lights, such is not really the case. I find that an exposure that is not quite long enough to give me full detail is the one that is most likely to

ON A QUATSINO ROAD

A STAND OF DOUGLAS FIR

become too dense in the sky where it shows through the trees, perhaps from developing too long in an attempt to get out more detail. With a longer exposure, this last temptation is not present, and the result is a much better printing negative. One need have no fear of the resultant print being too flat; the subject has contrast, contrast to spare, and if a little should be lost, it is better than the loss of the detail that has so much to do with the good quality of pictures of this kind.

The real trouble in work of this character is not only the density of the timber itself, but the thick, rank growth of the underbrush and small trees at the base of the towering giants that one's mind pictures as such inspiring subjects. This virgin forest is somewhat different from a park in this respect; nature is prolific, and the camera takes it all in, even if the mind and eye fail to trouble with such small matters. I find a good, stout hand axe a most useful adjunct to my photographic outfit, and even then I do not use it as much as I should. Time does not always permit of extensive clearing; and besides, the work is somewhat strenuous when the size of the underbrush is of good, normal proportions.

I regret that all of my negatives have been made with an eye to the dollars they would bring in, rather than with a desire to secure an expression of the spirit of these big forests. And yet I have tried to get into my pictures some suggestion of the atmosphere and the conditions as they exist in this country. Results such as are shown in some of the pictures herewith prove that there are pictorial possibilities, and some day, when I can find the time, I am going out with my old 8x10 and my trusty axe, forgetting that there are any such things as dollars, and see what I can get. Just now I have an order from the Forestry

Department for a picture of a good stand of hemlock, and I know where there are several good pictures of that kind, but I also know it is going to be somewhat of an undertaking to get what I want properly on the plate. There will be one advantage, one that I rarely have: I can go about it quite deliberately.

Too much of my work must be done at just the designated time. For example, I was asked, only the other day, to come and take a picture showing the rigging of a spar tree. I had to be there when the man was fixing the rigging and there was no going back after another exposure if the picture was not secured at the first trial. In the case of men at work, not only is their time valuable, but the progress of the work will have made the desired picture impossible if one arrives on the scene too late. Making the picture over is out of the question. In this the kingfisher has the advantage over the photographer. I met Mr. King on my way home the other evening; he had gotten his fish, all very fine, taken him by the tail and given him the customary three whacks on the limb of a tree, and then bolted him. But he failed to hit the fish hard enough and he did not lay quiet as a well-behaved fish should. So Mr. Fisher had to bring him up again and give him three more whacks. And that is where he has the advantage over the poor photographer.

Where groups of men are included, I always try for as open a spot as possible, and prefer a day when the sun is not shining too brightly. Under such conditions there is no difficulty, but when I am asked to include figures in pictures of dense timber, I can only explain that it is practically impossible, or else give the shortest exposure I dare and then trust to luck that the figure or figures did

THE GIANT SITKA—4700 FEET IN ONE CUT-OFF

not move and that enough detail was secured to prove satisfactory. Where it is quite important that the negative be all that is possible, I find tentative development, the kind done with alternate immersion in the two solutions, the most advisable. By soaking the plate in the pyro solution until thoroughly saturated, and then draining it and placing it in the alkali solution, there is practically no danger of choking up the high-lights while the alkali brings out all the detail possible in the shadows. The reason of this is that the emulsion contains just enough of the developer proper, the pyro or whatever one may be using, to bring up the high-lights to a printing density and no further. If, after soaking in the alkali for a few minutes, there appears to be no danger of such blocking up and more density is required, the plate is returned to the first solution for a brief period, longer or shorter as one may think necessary, and the process repeated. Sometimes a negative is transferred from one tray to the other several times in the process of developing. Again, a tray of clear water is always kept at hand and the negative may be placed therein to gradually build up at its own sweet will. This takes time, but it is well worth while when the negative is an important one that has not been given all the time that one would have liked had there been no danger of movement.

A QUATSINO MORNING IN AUTUMN

There is really very little that I can offer in the way of advice on this class of work, further than the injunction to give plenty of time. That heeded and there is really little or no difficulty. One will be asked to do the impossible; and if inexperienced, may waste good plates in trying to comply with such requests. But the better plan is to have a fair idea of what can be done and

SOME SPRUCE FOR THE AEROPLANE FACTORY

then insist upon the necessary conditions. One's reputation as a photographer will be better and his bill for plates will be more in harmony with his cash receipts for work delivered. If the photographer fails to get a good picture with a flashlight or something unusual, there is little loss of reputation, but the average lay man cannot understand why a "snapshot" of a man swinging an axe cannot be taken right where he happens to be working. To him, the light looks all right and it is useless to try to explain.

Not in nature, but in man, is all the beauty and worth he sees. The world is very empty, and is indebted to this gilding, exalting soul for its pride.—EMERSON.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

CLEANING DIRTY TRAYS: Make up ten ounces of a saturated solution of potassium bichromate and thereto add one ounce of sulphuric acid. This is a stock solution. To clean tray, dilute two ounces of this stock solution by adding six to eight ounces of water, and apply with a mop. Keeping the hands out of the solution as much as possible and rinse tray well after cleaning. The mixed solution may be kept in a wide-mouthed bottle for further use, being strengthened by adding fresh stock solution when required.—G. A. L., California.

CAMERA CRAFT
A PHOTOGRAPHIC MONTHLY

Vol. XXVI San Francisco, California, December, 1919 No. 12

Boosting Our California Climate

It has long been the accepted thing to accuse the resident Californian, particularly the editorial one, of unduly praising the climate of this section. In refutation of this, let us submit a paragraph from the editorial section of one of our leading San Francisco dailies of October sixteenth:

"It is unfortunate that the Belgian king and queen could not have seen the Yosemite at a better season. September is a glorious month in the Valley, but by this time it is getting rather cold and cheerless at that altitude in the Sierra."

The truth of the matter is that on the night of October sixteenth the Crown Prince Leopold camped and slept out with the rangers on Bridal Veil Creek at an elevation of about seven thousand feet, while the October business at the Glacier Point Hotel and the Sentinel Hotel, which are open for guests throughout the year, exceeded the average August business. From a letter to a mutual friend written by Arthur C. Pillsbury of Pillsbury Pictures, Incorporated, dated

KING ALBERT OF BELGIUM AND MR. NYE OF THE U. S. SECRET SERVICE AT GLACIER POINT, YOSEMITE NATIONAL PARK

October twenty-fourth, we quote: "The autumn foliage is simply a dream of color. The dogwood trees along the road from Pohona Bridge to Bridal Veil Falls is the most beautiful mass of coloring I have ever seen. We, who live in the Valley and know it under all conditions, do not miss the larger mass of water in the falls, in our enjoyment of the, to us, greater beauty of the cliffs and domes at this time of the year when the autumn foliage is a riot of color.

I trust you will be able to yourself see the Valley at this, the most beautiful time of the year."

The picture herewith, showing King Albert at Glacier Point, does not suggest "rather cold and cheerless" climatic conditions, the same impression that the editorial extract quoted above would be inclined to give the uninformed. Our frontispiece this month, a less spontaneous product of Mr. Pillsbury's camera, shows some portion of the floral display that comes earlier in the season and helps one to realize that the appreciation of the autumn coloring is not because of previous lack of color, but because of the variation therein.

The Seventh Pittsburgh Salon

The Seventh Annual Pittsburgh Salon of Pictorial Photgraphy will be held in the Department of Fine Arts of the Carnegie Institute, Pittsburgh, Pennsylvania, March first to thirty-first, 1920, inclusive. All prints submitted will be passed upon by an impartial and thoroughly competent committee of selection. Prints possessing the highest merits in artistic expression and execution will be hung. As has been the rule heretofore, no picture will be eligible that has been exhibited before in the United States. Entry forms, containing full information and conditions of the Salon, may be obtained by addressing Charles K. Archer, Secretary, 1412 Carnegie Building, Pittsburgh, Pennsylvania. Last day of entry, Tuesday, February tenth, 1920.

The above is the bare wording of the preliminary announcement, an announcement that means much to many of our readers and perhaps but little to many others, depending upon their zeal or zest in the matter of pictorial photography. To those acquainted with the scope and importance of these salons nothing further need be said. To those aspiring ones who wish to measure the results of their efforts with the best that is produced, we can only say: Prepare your exhibit and submit it to the Pittsburgh Salon. You may be disappointed, and you may not. But you will be assured of fair and courteous treatment, and you will not regret having made the attempt.

M. C. Gennert on the Coast

Mr. Gennert spent a few days in San Francisco before going on to Los Angeles, where his firm, that of G. Gennert, also of New York and Chicago, maintain a branch house that is doing a fine business, particularly in the line of photographic chemicals used by the large motion picture laboratories in that city. It is his intention to remain there for some months before returning to New York; and, with his enthusiasm and business aggressiveness, coupled with his sincere yet unassuming personality, the photographic trade here on the Coast cannot help but be the gainer thereby.

Enrique Muller Here

Enrique Muller, the well known naval photographer, together with his charming wife, arrived here during November, going on to the home of their son, Enrique Muller, Jr., in Los Angeles. Mr. Muller is undecided as to his future activities, but seems determined to make the Coast his home, never having been able to overcome the effect of his former visit here.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Testing Lenses for Process and Copying Work

The variety of lenses in regular use for copying and process work at the present time is so large that one is inclined to believe that almost any lens of suitable focal length can be satisfactorily employed in practice, provided due regard is paid to its limitations. But for successful work it is desirable that these limitations be first discovered, and it is more satisfactory to examine a lens in a methodical way, so that one may know exactly how far one may go, than to risk a job turning up one day which the lens is unable to cope with. A 12x15 R. R. lens of ancient though reputable manufacture may be found to be quite efficient for the average run of half-tone work up to say 8x10, but may fail absolutely on a 12x15 line job; while its employment on three-color work would most probably be fatal to good results. Yet there are 12x15 R. R. lenses being used daily for three-color half-tone and producing excellent results.

It is not a difficult matter to test a lens thoroughly on a camera, and a few suggestions for those who have the time and inclination to undertake the work are contained in these notes.

A camera one or two sizes larger than the plate the lens is supposed to cover should be used, in order that the definition given by the lens at the edges of its circle of illumination may be clearly seen, and if the camera is mounted on a photo-engravers' stand of suitable length, and a considerable range of reductions is obtainable, it will be an advantage. An ordinary studio stand can be used, however, provided care is taken that the back of the camera is absolutely square with the easel carrying the test object.

As a test object one of the special charts obtainable from most lens manufacturers is best, because the collection of weird designs usually found along the edges and in the corners of these charts readily indicate, by becoming more fantastic than ever, any irregularity in the correction of the lens. The chart is pinned up on the easel or wall and illuminated as evenly as possible by daylight or arc lamps. The parallelism and rigidity of the camera should also be carefully checked, and care should be taken to see that the plate in the dark slide occupies precisely the same position as the focusing screen, as otherwise faults of the camera may be unjustly attributed to the lens. The lens should be exactly in the center of the focusing screen or plate.

A rough inspection of the image of the chart on the focusing screen may then be made, and the center of the chart focused as sharply as possible with the camera arranged for about one-quarter diameter reduction, or the greatest reduction which will allow the whole of the screen to be covered by the image. For instance, if the chart employed is 2x3 feet, and the camera a 12x15, the image would fill the screen at just under a one-half diameter reduction, and the preliminary examination should be made at this reduction. In the case of lenses of long focal length, two or four of the standard charts may be used; in fact, the larger the chart the better. The greater the reduction, the more searching the test becomes, as the lens is being used over a wider angle, and it is mostly when copying large originals at a considerable reduction that lens troubles occur in reproduction work.

Having examined the image visually on the screen at various stops, a plate should be exposed at full aperture. We will assume that a 10x12 lens is being tested. The first exposure should be made on a 12x15 plate, so that the falling off of illumination and definition at the edges may be recorded. Then stop down to f-16 and make another exposure. These two negatives will suffice to show the practical covering power of the lens, and it will probably be found in the case of a modern lens, that the f-16 one shows the

12x15 plate well covered, although the lens is nominally only supposed to cover 10x12.

Now we turn to examine the behavior of the lens in detail on a plate of its own size. Alter the position of the camera so as to get the image of the chart to occupy exactly the 10x12 plate. Then focus at full aperture, and get the image as sharp as possible in the center of the screen. Three test-plates are sufficient, one taken at full aperture, usually f-8 or f-11, one at f-22, and one at f-45. These will enable the experimenter to judge the largest stop that can be safely used for various classes and sizes of work. The "full-aperture" plate will show any defects of the lens by deformation of the designs on the chart. Lack of correction for blue-violet rays will be indicated by a general lack of definition all over on the negative, although the visual image was sharp. Pronounced spherical aberration will produce a similar effect, but in this case the visual image will also be unsharp. Astigmatism will be indicated by the appearance of the vertical and horizontal lines on the chart, particularly those at the edge; if both are equally sharp, there is none present. Distortion can be readily observed by placing a steel rule along the negative, against one of the lines which is straight on the chart, whereby one is able to see if the line has become curved or distorted by the lens. The other two negatives will serve to show how much any apparent errors are reduced or eliminated by the use of a smaller stop. A comparison of the three negatives will also show whether the focal plane of the lens shifts with different stops, a peculiarity occasionally possessed by even high grade anastigmats, and one which causes considerable annoyance in practice.

If the lens is to be used for three-color work, a rough test as to its suitability and color correction is obtained by making three negatives of the chart through tri-color gelatine filters on panchromatic process plates, with a fairly large stop. In this test the focusing should be done through one of the filters, and the filters used must be perfectly clean and free from finger-marks, etc. Cemented filters should not be used unless they are known to be of the very finest quality and to have no appreciable optical defects of their own. When these three negatives are obtained, any difference of focal length under the different filters will be noticeable, and variation of the size of image, commonly called the "register," is discernible by superimposing the negatives, or by carefully measuring the length of one or more of the chart lines.

The tests above outlined do not, of course, give results to a very high degree of accuracy, neither do they indicate all that the optician wants to know about a lens, but they are sufficient to enable the user to define the practical limitations of his lenses, and when he has done that, he will know what jobs he can tackle successfully with each lens at his disposal. Further, the test negatives will prove extremely useful if at any time he should have occasion to complain to the manufacturers regarding the performance of any particular lens.—E. Kenneth Hunter in *British Journal of Photography.*

A Simplified Method of Developing Autochrome Plates

Some years ago there was published a method of developing Autochrome plates, according to which the observation of the time required for the appearance of the first outlines of the image in a suitably diluted developer served as an indication of the correctness of the exposure of the plate, or whether it had been over-exposed or under-exposed, and also enabled the user to determine the time during which the plate should be developed in a solution to which an addition of concentrated developer had been made in order to obtain a good result.

This variable time of development, which is determined by the time of appearance of the first outlines of the image, is given in a table which we worked out by a series of practical tests made on plates which had received various degrees of exposure—under, over, and correct.

The method yields very good results, and allows of a very satisfactory transparency being obtained with a plate which has been exposed as much as four times the normal time. In use, however, it has the disadvantage of requiring the table of figures, prepared as a transparency, to be read by the dull light of the dark-room, a condition which is liable to give rise to mistakes.

An amateur worker, M. Meugniot, has communicated to us a method of working which is simpler than that we had indicated. It consists in bringing up the first outlines of the image always in a dilute developer,

but this dilution is so adjusted that, in subsequently continuing development in a more concentrated developer, the times of immersion in these two successive developers shall be equal. We have adjusted the degree of dilution of the developers to be employed according to this new system, so that exactly the same quantity of developer is used as in the former method.

The system of working which gives the best results is as follows:

Developing solutions. The stock solution is that which has hitherto been used, viz.:

Metaquinone	15 grams
Soda sulphite, anhydrous	100 grams
Potassium bromide	6 grams
Ammonia, 22 deg. B.	32 cubic centimeters
Water	1000 cubic centimeters

For a 9x12 centimeter plate in a 9x12 dish, two solutions are made up from this stock solution:

A: Stock solution	10 cubic centimeters
Water	15 cubic centimeters
B: Solution A	2 cubic centimeters
Water	30 cubic centimeters

The plate is immersed in the B solution, observing all the necessary precautions for the development of the Autochrome plate.

The time of appearance, from the moment of immersing the plate in the developer, of the first outlines of the image, not reckoning the sky, is noted either with a stop-watch or a sand-glass.

As soon as the first outlines of the image appear, solution B is poured off and replaced by the portion left of solution A—namely, twenty-three cubic centimeters. Development is then done for exactly the same length of time as was required for the image to appear in the first developing solution.

When using a sand-glass, it is sufficient, as soon as the first outlines of the image have appeared, to stop the passage of the sand by laying the glass in a horizontal position and then placing it vertical again, but the other way up, in front of the dark-room lamp. In this way the sand-glass indicates a second period of time exactly equal to the first.

The remaining operations, reversal and redevelopement, are done in the usual way.

We have developed by this method a number of Autochrome plates which have received exposures ranging from one to four times that of correct exposure, and have obtained in all cases as good results as by our former method.

This new system of development appears worthy of being brought to the notice of Autochrome workers on account of its great simplicity and the excellent results which it yields.—Lumieres and Seyewetz in *British Journal of Photography.*

Tracing Defects In Negatives

From an article in the *British Journal of Photography,* under the above heading, I cull the following excerpt as of much practical value:

When we come to the causes of general fog over the whole area of the negative one of the things which will, of course, occur at once is want of safety in the dark-room illumination. This may arise either from leakage of white light into the dark-room or from passage of actinic rays through the safelight of the dark-room lamp. A little hint as regards the former is worth mentioning, since we know that it has proved the means of tracing leakage of light which remained undetected until it was used. It is simply to lay a piece of mirror in the empty developing dish, and with all lights extinguished to examine the mirror for any reflection of light. It may happen from the special way in which a dark-room has been fitted up, often by partitioning off part of a larger room, that outside light finds its way to the developing dish from a source which cannot be seen unless one can take a look round exactly from the position which the plate occupies. The mirror enables one to do this. As regards the dark-room light itself, the production of fog from this source is readily detected by the usual plan of laying a plate in the developing dish in total darkness, at the same time laying one or two coins on it. If then the dark-room light be turned on and the developer applied for, say, ten minutes, the presence of any insecurity from this cause should be revealed by the production of the outlines of the coins on the plate. In making such a test as this it is too often forgotten that the safety of a dark-room light increases considerably with the distance from it; it will not do to make the test with the developing dish three feet away and then expect an equal safety of illumination if the plates are handled or developed close to the lamp.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

A Rapid Fixing Bath

One of our correspondents asks about a rapid fixing bath that was copied by another photographic magazine from one of the French publications about a year ago. The trouble lies in the fact that the formula has been badly mangled in the process of translation and in being copied from one journal to another, the particular rendition concerning which our correspondent inquires being quite impossible. A "stock solution" is called for, and yet only solids are mentioned, while the instructions to use one part of the stock solution to four parts of water for fixing plates could hardly be followed because even a saturated solution of the chemicals involved would hardly permit of that degree of dilution if rapid fixation was the object. If our correspondent wishes to try out the formula we would advise taking as follows:

Sodium hyposulphite, crystals	16	ounces
Ammonium chloride	6¾	ounces
Sodium metabisulphite	40	grains
Water	40	ounces

Using this as a stock solution, mix it with equal parts of water, or a little more, for plates, and with from two to three times as much water for use with papers. It is claimed that this will greatly shorten the time of fixation and also leave the by-products of such fixation in a form more readily and rapidly removed by washing.

Age of Bromide Paper

It is impossible for us to answer our Ohio correspondent on this point, namely, the length of time bromide paper will retain its good printing quality. We, ourselves, have used paper that was seven years old with perfect success, despite the fact that no variation from our usual procedure was employed. We have also seen, within the past month, fine prints made on a brand of paper that was discontinued over fourteen years ago. On the other hand, we once found a professional using a gas illuminated cellarway for the storage of his bromide paper, a location where damp air and leaking gas fumes were in evidence, and his paper went bad in a very few weeks. It is all a matter of the conditions under which the paper is stored.

Hypo Stains

We are constantly being asked how hypo stains can be removed, and just as regularly we have to explain that there is really no such animal. What are called hypo stains are no more or less than developer stains that make themselves apparent in the hypo bath. One visitor argued that his particular variety of stains were really hypo stains because they were due to hypo carried onto the paper by the hands of one of his employees, before the prints were developed. But even then, the stains were dveloper stains. The hypo had simply caused a change in the sensitive salts in the emulsion so that development caused a brown stain. Sprinkle some distilled water on an undeveloped print and then proceed. The emulsion will be wet where the drops of water fell, those points will develop quicker, there will be spots that are darker than the surrounding image, and these spots will be water stains. But to return to our developer stains, and you can call them hypo stains if you will, there is really little hope of removing them. The only thing that can be done is to use precautions to avoid them in the future. Allowing a print to soak in a strong developer in the hope that more of the image will be brought out, is almost certain to result in blotches of brown stain. Neglecting to remove the developer from the emulsion before placing in the fixing bath is another cause of such stains. Generally, the hypo bath, acting as a washing bath, will absorb the developing solution evenly and quickly enough to prevent staining through patches of developer becoming oxidized within the emulsion, but it is not well to depend entirely upon its so doing, particularly if there is

any danger of air bubbles or contact with another print to prevent the immediate and even action of the hypo bath. A new, fresh developer will give less trouble than an old, exhausted one, simply by reason of its lesser inclination to oxidize; but the best precaution is to give each print at least a slight rinse before placing it in the hypo bath, and then keeping it moving about for a few moments after it goes therein.

Lens Tight In Mount

About the best procedure is to apply a drop of kerosene to the line where cell and mount meet, at intervals along such line, and allow it a day or two to work its way in. Care must be taken, however, not to get any of the oil where it will work into the point where the lens proper meets the walls of the cell. After the oil has been allowed to soak in, apply a twisting strain in the proper direction by means of two strips of wood, hinged together at one end and with their center portion cut out to form the two sides of a circle a trifle smaller than the diameter of the part to be turned. Putting a lens mount in a vise is a trick that should never be employed, except, of course, as it may be placed therein inside two clamps such as we have suggested for the turning operation.

Why All the Expense?

When one of our friends, in answer to our inquiry as to what he is doing in photography, explains that he is giving it up because of the expense involved, we become somewhat irritated, somewhat peeved. Every man should have a hobby; and, properly handled, photography is about the most inexpensive one that he can select, to say nothing of its other good features. Of course, if one does as so many try to do, and that is gratify their every desire in the matter of apparatus and material, expense mounts up very rapidly. We know quite a number of these enthusiasts whose photographic equipment must have cost around a thousand dollars, and yet they have never turned out a half dozen pictures worth a half day's work by a good photographer. On the other hand we have friends who, like the late W. H. Rabe, have no particular desire to burden themselves with other than the most simple apparatus; and, in using their camera, have no desire to snap the shutter on this, that and the other thing, simply to burden themselves with the work of developing such exposures or to lighten their purse by paying for the work being done by someone else, let alone paying for the plates or film so wasted. Mr. Rabe achieved fame as a salon exhibitor while using an "Adlake" magazine camera, the last of which were closed out by a Chicago house a good many years ago at one dollar and seventy-five cents each. The late Walter Zimmermann used a small, old style Kodak, and made perhaps forty or fifty exposures during a busy photographic year. The real work, we should say the real enjoyment, came in the making of the exhibition prints from the most suitable of these negatives. His total expenses, photographic expenses, could not have been more than a few dollars each year. And yet he was a prominent exhibitor in this country and abroad.

But, the reader says: "I have no ambition to be a salon exhibitor. I want to make pictures that will serve as records; pictures that will please my friends." Well, why not go ahead and make them? The same inexpensive apparatus can be used, the same care taken to avoid waste of material, the same good judgment can be employed to see that everything is right before the exposure is made. For example: we have one friend that uses a little old-fashioned plate camera that a second-hand dealer would not look at; one that makes a negative about three inches square. The lens, which I think is a single achromatic, does not cut the plate to the corners, but he finds that an advantage. He says it works just like a good portrait lens in that respect, and as he makes only portraits, its slow speed is its only drawback. But when he makes a portrait he gets a picture; he is just as careful, in his out-door, back-yard studio, to see that everything is right, as he would be were he exposing a 11x14 plate.

Making Paper Negatives Transparent

Making them more transparent is the right way to put it. Our Ohio correspondent is advised that the best worker we know, along this line, employs a mixture made up by dissolving one ounce of Canada balsam in each five ounces of best turpentine. This is applied to the back of the paper negative with a tuft of cotton, some little care being necessary to insure an even distribution.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

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Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4675—Samuel Pritzker, Apt. H, 13th and E. Madison Sts., Seattle, Wash.
Post cards and vest pocket kodak, developing papers, of England, France and Western Canada; for foreign scenes. Class 1.

4676—W. C. Telford, care Power House No. 1, North Fork, Cal.
Class 2.

4677—Arthur Craff, R. F. D. 1, Lockridge, Iowa.
2½x4¼, on developing paper, of landscapes, views and group pictures. Class 1.

4678—Russell Neville, Kewanee, Ill.
Post cards, on developing paper, of original figure studies; for same. Class 2.

4679—Richard Westoby, Box 42, care Honolulu Plantation Co., Aica, T. H.
3¼x4¼ and 3¼x5, on developing paper, of Hawaiian scenery, sugar mill and plantation and orientals; for marines and figures, draped or undraped. Class 1.

4680—Chas. H. Batchelder, 72 Verona St., Lynn, Mass.
8x10 and 5x7 on carbon, bromide and developing papers, of landscapes and moonlight effects; for like subjects. I desire to exchange only 8x10 prints. Class 2.

4681—E. C. Jolliff, P. O. Box 5, Catawba, W. Va.
3¼x5½ and 4x5, on developing papers, of landscapes and water falls; for all kinds of views. Class 1.

4682—A. G. Cronacker, 1065 S. Howland St., Kenosha, Wis.
5x7 and 6½x8½, on developing papers of landscapes and sunsets; for mountain scenery and marines. Class 1.

4683—Leighton Rutledge, 5443 Page Blvd., St. Louis, Mo.
2¼x3¼, on various papers of balloons, places of interest in St. Louis and general scenes of interest; for aeroplane and balloon views, historical subjects of all kinds, views in other cities, interesting scenes and places elsewhere. I desire to exchange for any size under 8x10, square inch plan. Class 1.

RENEWALS

651—H. E. High, 1023 Champa St., Denver, Colo.
Exchange notice later.

1572—H. E. Bishop, 551 E. 40th St., Indianapolis, Ind.
5x7 and smaller, any subject. Class 1.

2776X—L. A. Sneary, 2822 Espy Ave., Pittsburgh, Pa.
Will exchange 5x7 and smaller; lantern slides historical and others, after correspondence. Try a stereo or two. Class 2.

2139X—Albert G. Hill, 385 Union Ave., Bridgeport, Conn.
Real good post cards; for the same. Class 2.

3675—Otis T. Bartels, R. F. D. No. 1, Box 123B, Marshfield, Ore.
2¼x3¼ up to 5x7, on various papers of coast, landscapes, trees, portraits; for anything of interest. Class 1.

3676—Rev. C. R. Lowe, Dakota City, Nebraska.
Class 1.

3974—Jas. K. Mills, Amherst, Mass.
Lantern slides; for the same. Class 1.

3996—Paul M. Elder, Box 155, Spirit Lake, Idaho.
5x7 and smaller, on developing papers, of birds, flowers, trees and mountain views; for birds, flowers, trees, old ruins, historical and so forth. Class 2.

4136—C. E. Fey, P. O. Box 25, Laramie, Wyo.
Class 2.

4174—Aug. Gaarz, 608 Mansfield Road, Cleburne, Texas.
5x7 and smaller, on developing papers, of figure studies in nude and semi-nude; for the same. Class 1.

4340—Leo Dillingham, Hdq. Western Dept., San Francisco, Cal.
Class 1.

4363—Trumbull Welsh, 50 Fort Green Place, Brooklyn, N. Y.
Would like a few foreign exchanges.
Class 2.

4405—Louis H. Dreyer, Pantlind Hotel, Grand Rapids, Mich.
2¼x3¼ to 8x10, on printing-out and developing papers, of views, game, bathing girls and nudes; for same. Class 1.

4413—Wilfred Hickman, Fairmount, Ill.
2½x4¼ and 4x5, on developing paper, of landscapes, snow scenes and various other nature subjects; for anything pictural. Do not care for plain, straight records.
Class 1.

4528—Harvey Lynn, Charleston, W. Va.
2¼x3¼, 2½x4¼ and 3¼x5½ on various developing papers, of miscellaneous views, landscapes, marine pictures; for same.
Class 1.

4534—M. Austin King, Canyon, Tex.
2¼x4½ and 3¼x5½, miscellaneous and enlargements; for same. Class 1.

4549—Fred Goodin, Covington, Ind.
5x7 and smaller, on developing paper, of landscapes and scenery in Indiana, mountain and lake views of Idaho; bathing girls and figure studies; for bathing girls, figure studies, scenery or anything of general interest. Class 1.

CHANGE OF ADDRESS

504—Wm. A. Bixler, 1025 E. 7th St. Pomona, Cal.
(Was Anderson, Ind.)

440—E. J. Jensen, Tracy, Cal.
(Was Jamestown, Cal.)

2479—Mrs. L. E. Gundlach, Amboy, Wash.
(Was Home, Ore.)

4400—L. K. Miller, Constantine, Mich.
(Was Jones, Mich.)

4601—L. L. Hawkin, 207 W. First St., Albany, Ore.
(Was Lebanon, Ore.)

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

Lick-Wilmerding Camera Club

On the evening of October twenty-first the members of the Lick-Wilmerding Camera Club assembled to listen to a very interesting lecture by L. E. Rea, covering his theory of light and exposure. This club is composed of pupils of the Lick and Wilmerding Schools of Mechanical Arts, and is an organization composed of wide awake and enthusiastic young men; just the kind of a body to appreciate an informative talk such as Mr. Rea delivered.

St. Louis Camera Club

A little thing like taking the emulsion off old plates and slides can cause some trouble and perhaps the use of some cuss words. Mr. Kuehn was telling us, at our last meeting, how he accidentally discovered a unique and efficient method of eliminating this annoyance. One night, while fooling around with some old chemical solutions, he put several old negatives into an exhausted pyro developer just to see what would happen. He left them there over night, and the next morning, on taking these negatives out of the solution, he noticed that the emulsion was so loose that merely putting them under running water for a few minutes left the glass so clear that it was only necessary to dry it to secure a clean surface.

Many readers, no doubt, have heard that by using black paper in their plateholders, halation could be eliminated. While so doing may help a little, experiments by several of our members have proven that this method cannot be relied upon because the necessary good contact with the back of the plate is not certain. Their verdict is that for sure results the use of the regular backed or non-halation plate is the best method of procedure.

Local camerists might do well to attend the Club meetings, held the second and fourth Thursdays of every month, 8. p m., at the Club Rooms, Central Public Library Building, Thirteenth and Olive Streets, St. Louis, Missouri.

Chicago Camera Club

Every Wednesday evening at eight P. M., there is a regular meeting with some form of instructive talks or demonstrations. At the last one in October, Dr. Moffatt dealt with mushrooms and toadstools in a talk illustrated by lantern slides. The first Wednesday in November the topic was: "Lessons from the Old Masters," illustrated by slides loaned by the Art Institute. The next was studio practice with a model, while the third was one of a series: "Half Hours in the Chemist's Laboratory," followed by some beautiful autochrome slides by O. H. Sampson. The requirements for membership in the club are not based on any particular ability in photographic work, but solely upon good character, good fellowship and interest in amateur photography. Our Chicago readers should call in at 31 West Lake Street, some Wednesday evening, and explain that they were interested in photography.

Kansas City Camera Club

Friday evening, November fourteenth, the members and their friends met at Parlor D, Biltmore Hotel, and enjoyed a demonstration on gaslight papers, followed by a discussion on lantern-slide making. Dr. Maclay Lyon, the secretary, sent out the announcements quite early and the attendance was such as to encourage the holding of other like educational meetings.

Elysian Camera Club

An interesting lecture on the basic principles of the camera, by Mr. Bolwell of the Ansco Company, was enjoyed by the members of the Elysian Camera Club, Hoboken, New Jersey, on October thirty-first, being the second of a series of educational lectures and demonstrations during the month. The beginner, as well as the advanced worker, are invited to attend all these lectures and demonstrations which are free.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Miss Mabel Chong, assisting Frank Aston of San Luis Obispo in his studio work, expects to leave shortly for China, where she will open a first class portrait studio. Miss Chong, with her charming personality and knowledge of the business in all its branches, cannot help but make a success.

Ethel Tucker (Webber) of Los Angeles showed us some fine Lake Tahoe pictures.

Tony Babb has just returned from the East, bringing his mother with him to reside on the Coast.

Ethel Lyons still holds forth at Bullock's in Los Angeles.

Mrs. King, of King's Studio, Tulare, is doing such fine color work that she is receiving large orders from the East.

Mr. Marton is now with the Landon Pharmacy of Fresno. Where next?

Marcell of Fresno is up and about again.

Enlargements of Quality

Johnson & Waters of this city have been doing enlarging for some of the discriminating workers of this city and the surrounding territory; and, at the suggestion of several of their customers, are placing a small advertisement in our pages. A trial will convince any of our readers of their capabilities in the line of enlarging and we can assure promptness and good treatment from this firm.

Illinois College of Photography

Seemingly every branch of the war service was represented by former I. C. P. students. S. G. Metsker, 1914, informed us upon his recent visit that his "bit" was inspecting rifles at the Rock Island arsenal.

A "canine feast" was given recently by the students; Lake Kanagga being the rendezvous. Naturally, weiners were the center of attraction; and these, together with the moonlight and the congeniality, did much to make the evening a pleasant one.

The Economy of "Hypono"

Our friend, who is always discovering things, things that other people do not see, had no trouble in discovering the real advantage of "Hypono". Even if one is in no hurry to get out his prints, the chemical should be used as a means of economy. A four-ounce bottle will take the hypo out of two thousand ordinary prints. Say one makes seventy-five or a hundred prints at a time, he wastes fifty minutes on twenty different occasions. Admitting that half of that time he can do something else besides keeping the prints apart or in motion, he wastes over eight hours total time. Anybody who cares to sell eight hours of his time for fifty cents can do so, but our friend the discoverer says his time is worth at least thirty cents more; he thinks keeping prints apart in a tray of running water is worth fully ten cents an hour—at least to him. Even deducting the interest on the fifty cents invested and the cost of mailing it to Tom Hadaway back in New York, he figures he is twenty-five cents ahead. Are you doing eight hours work for fifty cents?

Some Very Nice Finishing

Our advertising pages this month contain an announcement by the Rex Photo Finishers of Meridian, Mississippi. We have seen examples of this firm's work and were well pleased with its high quality. The firm is making a strong bid for mail order work and we feel sure our readers will not be disappointed in giving them a trial.

New Bass Bulletin

Bass Bargain Bulletin No. 20 is just to hand and, like its predecessors, is brimfull of camera and lens bargains. Those of our readers who contemplate an addition to their equipment or who may be considering making a change therein, will do well to get in touch with this firm, Bass Camera Company, Incorporated, Department 105, 109 North Dearborn Street, Chicago, Illinois.